

The Iron Age

A CHILTON PUBLICATION

THE NATIONAL METALWORKING WEEKLY

April 3, 1952

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194 extra ideas in The Iron Age this issue!

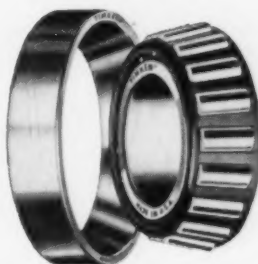
TRADE and business publications are one of industry's most important sources of information. And as readers know, these publications not only contain informative material in their editorial sections, but also offer a wealth of *extra* ideas in their advertising pages.

That's why these days, smart readers are giving both parts an extra-thorough combing. With costs on the rise and greater output a must, ideas that help a company boost its efficiency are more valuable

today than they have ever been.

In this issue of The Iron Age, there are 194 advertisements, many of them containing ideas that may help *your* business. And if you manufacture or buy machinery of any kind, we believe you'll find helpful information in the Timken® tapered roller bearing advertisements that appear regularly in this publication. The Timken Roller Bearing Company, Canton 6, Ohio. Canadian plant: St. Thomas, Ontario. Cable address: "TIMROSCO".

TIMKEN
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TAPERED ROLLER BEARINGS



NOT JUST A BALL ○ NOT JUST A ROLLER □ THE TIMKEN TAPERED ROLLER □ BEARING TAKES RADIAL ○ AND THRUST —○— LOADS OR ANY COMBINATION —○—



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WORM GEARING—universal in its application—affords advantages for almost every power transmission job. Select worm-gear units to meet your need—small or large—from the complete line of Cleveland Worm Gear Speed Reducers. For detailed information, diagrams and rating tables on standard small Cleavelands now available, write for our Bulletin 114.
Photo by courtesy of Continental Foundry & Machine Company.

CLEVELAND drive gives continuous performance

SLAB shears, working round the clock today, must have dependable drives. That's the reason so many of them—here—are equipped with Cleavelands.

In the production and fabrication of steel, Cleveland Worm Gear Speed Reducers and Worm Gearing operate a wide variety of equipment—from car dumpers and ore bridges right through the mills to heat-treat furnaces, finishing presses and loading-out cranes. In fact, wherever any industry needs a powerful, quiet, trouble-free right-angle drive, you're likely to find a Cleveland at work.

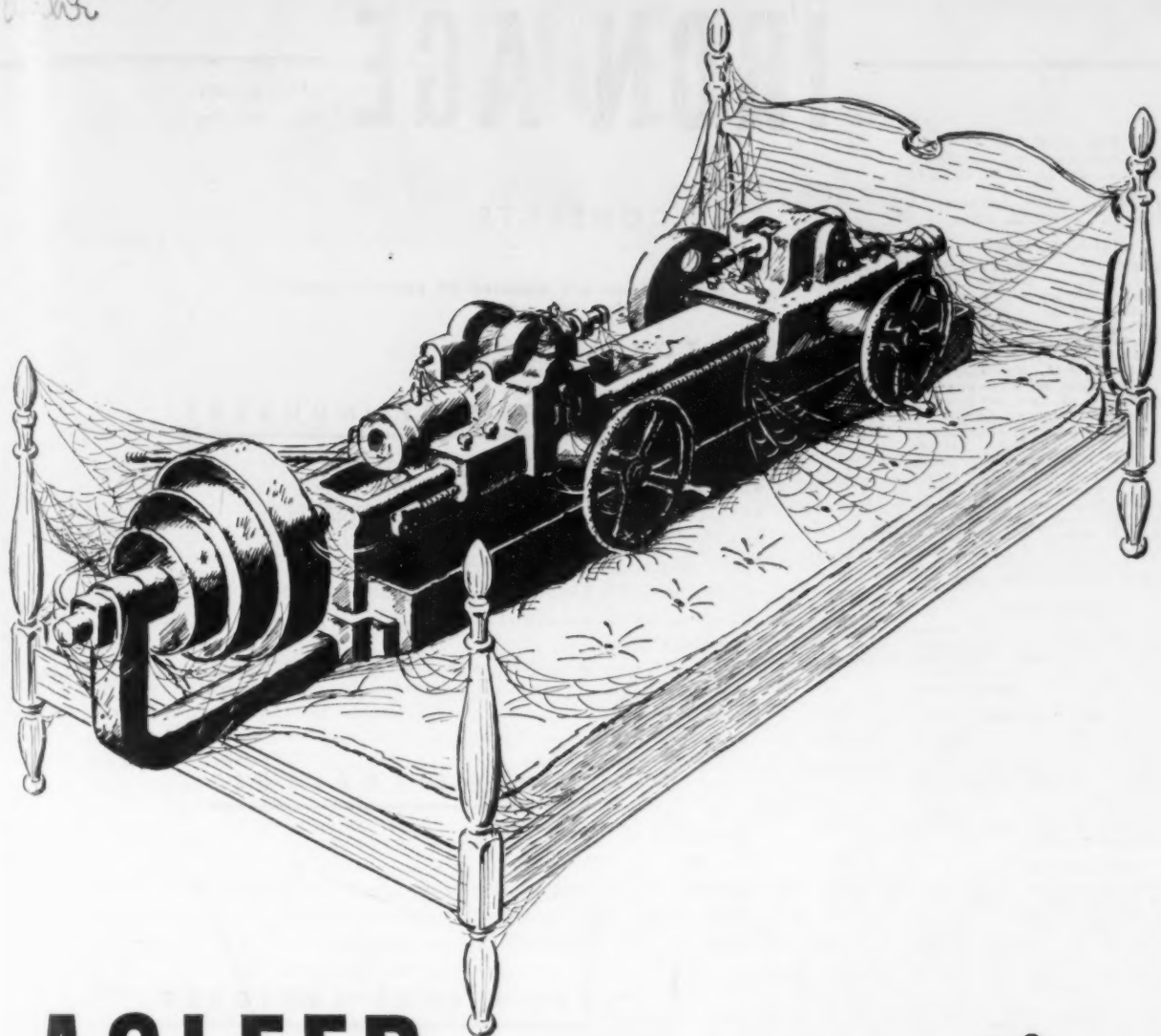
Wherever Cleavelands serve—and you'll find tens of thousands of them on the job—many for 30 years and more—engineers will tell you that Cleavelands will do their work under heavy loads, continuously or intermittently, no matter how severe the conditions, with a minimum of attention.

In or near your city, there's a Cleveland engineer ready to serve you. He will be glad to discuss your power transmission problems and suggest proper drives to meet your particular needs. The Cleveland Worm and Gear Co., 3252 East 80th Street, Cleveland 4, Ohio.

Affiliate: The Farval Corporation, Centralized Systems of Lubrication. In Canada: Peacock Brothers Limited.



CLEVELAND
Worm Gear
Speed Reducers



ASLEEP...on your time



An obsolete or worn-out machine, stuck away, sleeping and forgotten in a corner of your plant, is costly.

It is not doing you or anyone else any good. It is taking up valuable space.

Call in a scrap dealer and let him haul away your dormant scrap. It will help to supply the tons of additional scrap that is needed if the country's

steel furnaces are going to continue working at full capacity.

Today there are millions of tons of dormant scrap hidden away in plants and factories, and on farms.

If the steel mills can get that scrap, the steel supply picture will be very much brighter, with more steel for everybody. Call in a scrap dealer today!

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

More Scrap Today... More Steel Tomorrow

April 3, 1952

IRON AGE

APRIL 3, 1952
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Editorial, Advertising and Circulation
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DIGEST

of the week in metalworking

STRIKE FEARS GROW AS WILSON QUILTS

PAGE 81 President Truman's surrender to the steelworkers' wage demands forced Defense Mobilizer Wilson to quit. He was against inflation. The steel industry has now lost its only friend in Washington. The industry was this week on the verge of a strike—with much needed steel to be lost.

HOW TO COMMUNICATE WITH ENGINEERS

PAGE 83 Does management have receptive enough communication lines to its echelons of engineers? Does information flow upwards to executives and downwards to engineers so that industry profits? National Society of Professional Engineers has tussled with this subject and found some interesting answers.

ARMY ORDNANCE SETS SHELL SIGHTS HIGH

PAGE 84 Army Ordnance's production target should be met by early 1953. Stocks of bar and plate stock will be hit with increasing severity. Shell procurement is still on the way up. The new Army will use more steel shells with ferrous parts. Ordnance has found that brass and copper are too scarce.

AIR FORCE PRESS PROGRAM SAILS ALONG

PAGE 85 The Air Force's heavy press program is in full swing. It is intended to swing the air production battle in our favor. The forging presses will range from 18,000 to 50,000 tons in capacity; extrusion presses from 8000 to 25,000 tons. Six builders will continue deliveries through 1954 or 1955.

GALVANIZED PRODUCERS GET QUOTA BREAK

PAGE 87 Some headway is being made by makers of galvanized steel products in their battle to boost output. Zinc quotas for March and April were raised by NPA. The industry is hoping that the upward trend will continue. Slipping demand from other zinc users has diverted the extra zinc to galvanizers.

CHANCES DIM FOR NON-DEFENSE TOOLS

PAGE 101 In spite of the rumors, there is little possibility that Washington will soon amend its machine tool priority order to permit construction of new machines for non-defense uses. NPA admits that many have inquired about this output for civilian machines but the shortage is by no means overcome.

TOOL MAKERS WANT PEACETIME STRENGTH

PAGE 113 A government commission on machine tools will seek out ways to keep the machine tool industry strong in peacetime so that it can make a swift transition into war. The industry itself has been thinking on the same tack. Its committee is considering standby priorities, stockpiles, lower taxes.

PRECISION CONTROL SPEEDS SHELL OUTPUT

PAGE 127 Close control of every operation is maintained in production of artillery shells at Chevrolet-St. Louis Shell Div. From the first acetylene "nicking" of the carbon steel billet through packaging and shipment, 55 operations are performed. Top quality is assured by 100-pct checks 41 times.

FAST HOLE PRODUCTION WITH TREPPANNING

PAGE 132 For deep holes, trepanning can be as much as 95 pct faster than drilling. This is partly because carbides cut faster, but mostly because less of the metal is removed as chips. Trepanning is not limited to deep holes, but also produces ordinary through holes, like gear bores, faster.

ALUMINUM CAUSTIC ETCH MAKES NO SLUDGE

PAGE 138 Formation of sludge and scale in caustic treatment of aluminum has been virtually eliminated with this new caustic etching product. The dissolved aluminum remains in solution as sodium aluminat instead of being deposited as alumina on tank walls and coils. Tanks are cleaned by hosing.

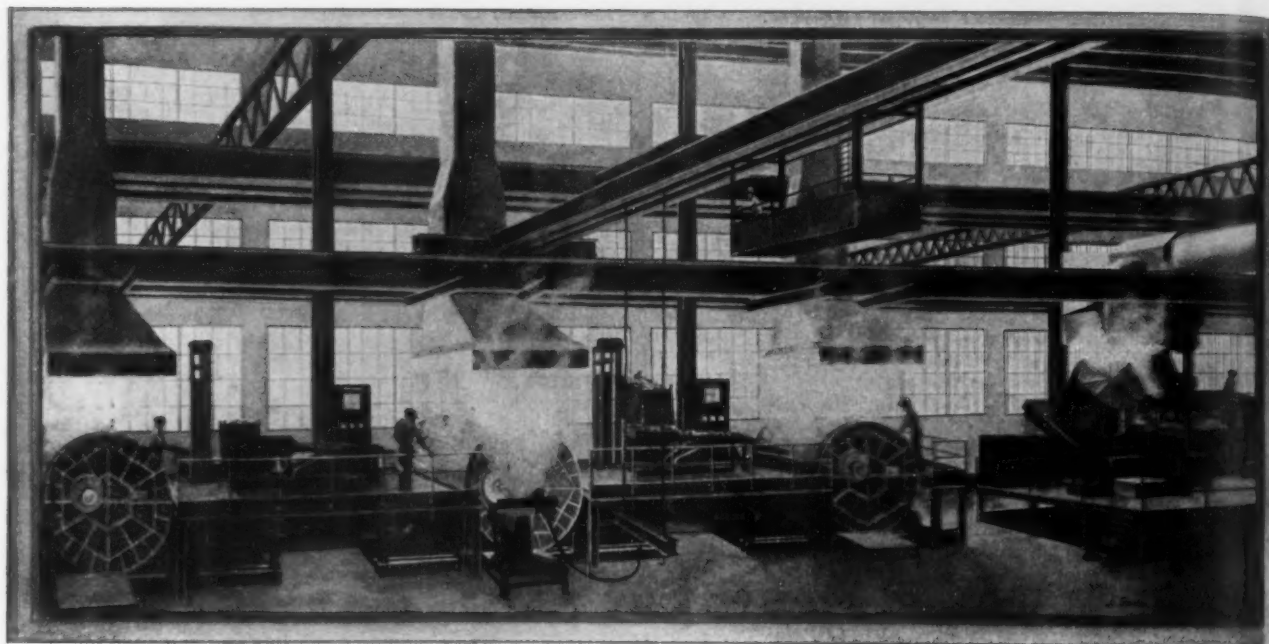
STRIKE FEAR CAUSES LITTLE MARKET FLURRY

PAGE 187 Fear of steel strike isn't causing the usual flurry in the market. Main reason is that purchasing agents are practically helpless to do anything about it. If a strike comes (the outlook darkened with Wilson's resignation), conversion, gray market and foreign sources of steel will boom again.

USE OF VAPOR DEPOSITION IS INCREASING

NEXT WEEK Vapor deposition is enjoying a revival. Dense, uniform coatings of metals and non-metals can be deposited on one another at temperatures well below melting points. The process can be continuous. Wire, rod, tubing, strip, and various shapes have been coated at atmospheric pressures.

AJAX Induction Melting Furnace— A Modern Tool for Industry



This oil painting, 9 feet long in full color, by J. Gordon White, shows AJAX-SCOMET installation at Scovill Manufacturing Company, Waterbury, Connecticut.

Here is a new tool for melting metal . . . Something that can concentrate enormous power in a small space . . . Something that can be adapted to accurate pouring, to precise temperature control, to inert gas protection, to high-grade refractories . . . A tool that can be used for all existing non-ferrous metals and alloys.

AJAX furnaces paved the way for continuous casting processes which lay dormant in old patents of farsighted inventors who thought ahead of their times. Junghans, with the help of the AJAX furnace, developed his continuous casting process at the Wieland Works in Germany before the last World War.

Scovill perfected the Junghans process in this country and is using AJAX-SCOMET furnaces of unprecedented size for melting, as shown in painting above. Nichols Wire & Aluminum Company used the first commercial Properzi machine for continuous production of aluminum

wire from molten metal delivered by AJAX furnaces; U. S. Metals Refining Company is using AJAX-SCOMET furnaces for continuous casting of oxygen-free copper. Cleveland Graphite Bronze Company produce their famous stock for steel backed copper-lead bearings exclusively in AJAX melting furnaces. AJAX furnaces are used in many plants and research laboratories for continuous bonding aluminum to steel.

AJAX made the first furnace for galvanizing steel in a refractory lining with accurate temperature control. AJAX furnaces were instrumental in the realization of modern squirrel-cage aluminum rotor production. AJAX supplied the first commercial automatic pouring device for die-casting machines.

These few examples show how AJAX induction furnaces can be applied to modern manufacturing methods. Write us for further information.

AJAX

TAMA-WYATT



AJAX ENGINEERING CORP., TRENTON 7, N. J.

INDUCTION MELTING FURNACE

AJAX ELECTRO-METALLURGICAL CORP., and Associated Companies
AJAX ELECTROTHERMIC CORP., Ajax Northrup High Frequency Induction Furnaces
AJAX ELECTRIC CO., INC., The Ajax Mullgren Electric Salt Bath Furnace
AJAX ELECTRIC FURNACE CORP., Ajax-Wyatt Induction Furnaces for Melting

The Rat Race

LABOR has had its golden age of power since 1940. It has won every round with the help of strikes, unions and the government. Various panels and boards have decided each and every time in labor's favor.

Steel industrialists faced with a strike and with no friends at court have yielded under pressure—for a price. Yet from whence come the terrific steel wage benefits that transcend all previous ones? The only answer is—the selling price.

Attempts made to hold a status quo of "no wage increase—no price increase" have brought accusations of greed, selfishness and anti-labor bias against the industry. Anyone who really knows our industrialists and businessmen of today cannot believe such tags.

There was a time when part of management deserved some such labels. But that was a long, long time ago. To keep digging up the old words and reusing them is an attempt to win by sheer emotional arguments alone.

It is hard to know what has happened to our economy since 1940—or even before that. One thing needs no history to understand—you can't get something for nothing. Or if you want to be scientific about it, your old high school formula "for every action there is an equal and opposite reaction" also fits.

Labor will pay for getting more than the economy can stand. In the long run the majority of people will find that they have not benefited as much as the dollar sign on the check says.

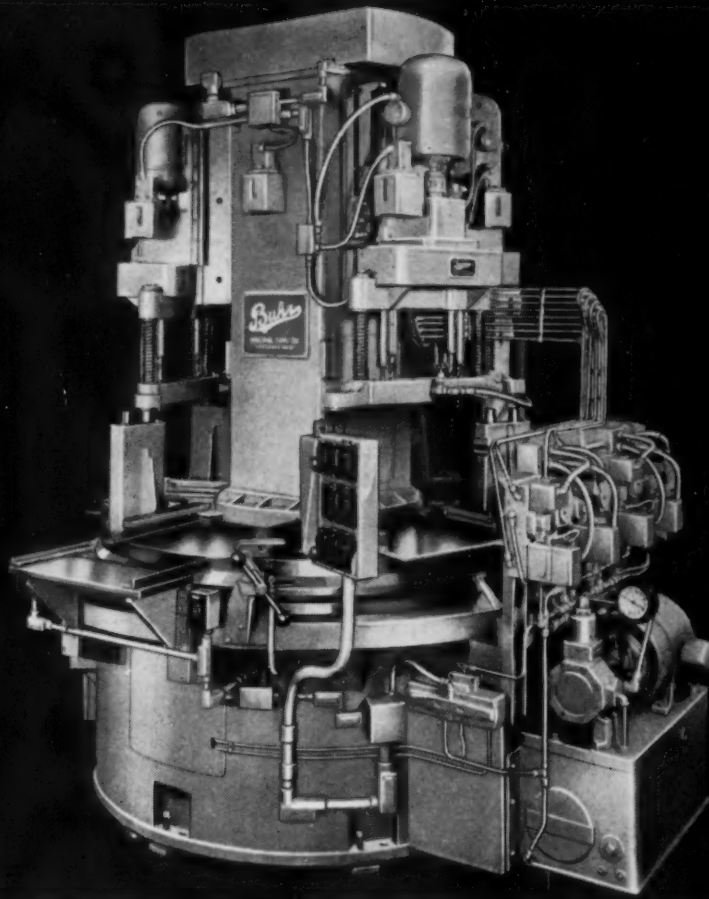
People with fixed incomes, pensioners, people with no power to wield and finally the union members themselves will find the rat race has not been worth the price.

Now is the time to call a halt—before it is too late. Have we the leaders who honestly know and believe this? We had one—Charles E. Wilson, Defense Mobilizer—but he had to resign to point up the seriousness of the current wage-price case (see p. 81.) If we don't listen to men like Wilson soon, neither labor's nor industry's gains will be worth a hoot.

Tom Campbell

Editor

THANKED FROM TOKIO TO TEMPLEHOF!



Aircraft Pilots . . . from Tokio Airport in Japan to Templehof Airdrome in Berlin . . . are grateful for such Production Stalwarts as this Buhr 5-Station Hydraulic-Feed Center-Column Special Machine . . . which is now working the clock around . . . helping to turn out Cylinder Heads for one

of the world's largest manufacturers of aircraft engines—engines on whose reliability pilots consistently stake their lives! Is it any wonder that some of these pilots . . . who know the fundamentals of production . . . say "thanks" to such Special Machinery as this . . . for a job well done?

Aviation Industries Rely on Machinery Like This for Critical Production Work

For making such a critical product as a large aircraft engine, Uncle Sam chose one of the world's best-known engine manufacturers. Volume Production . . . of the highest quality . . . had to be set up as quickly as possible.

One of Their Problems



To drill and ream the holes in the Cylinder Heads of this particular aircraft engine—that was one of their problems.

To handle this important phase of their production, they called in Buhr.

What the Machine Does

In general—this Five-Station Hydraulic-Feed Center-Column Machine with 72" Automatic Index Table . . . drills

and reams (6) holes in Rocker Arm Pockets in Cylinder Head of Aircraft Engine...handling four parts at a time. Specifically, the Machine accomplishes this—

- Station 1—Load and unload
 - Station 2—Drills (2) 1" dia. holes
 - Station 3—Drills (2) $\frac{23}{32}$ " dia. holes
 - Station 4—Drills (2) more 1" dia. holes
 - Station 5—Reams (2) .750" dia. holes
- PRODUCTION—50 parts per hour at 100% efficiency.

Why Buhr Was Chosen

In the Aviation Industry . . . as in many others . . . Buhr has served leading manufacturers for many years—some for more than a quarter-century! They have come to rely on Buhr whenever they need machinery for critical high-volume production. They know that Buhr has excellent manufacturing facilities . . . that their sales, engineering and production staffs are trustworthy and experienced, specialized in

this kind of machinery, and available anywhere in the United States.

For Details About Buhr



A comprehensive Catalog . . . or a personal call from a Buhr Sales Engineer . . . is yours for the asking. For every problem involving this type of Special Machinery—including the type that's "thanked from Tokio to Templehof"—phone, wire or write us.

BUHR MACHINE TOOL CO.

Ann Arbor, Michigan
Phone: Ann Arbor 2-5646—5980
Detroit Woodward 3-2126

Buhr SPECIAL MACHINERY...Leaders Make Sure With BUHR

Dear Editor:

All Things To All People

Sir:
Congratulations on a very fine editorial. It is the finest editorial I have ever read in an industrial type magazine.

Were there more such editors with the courage to write and print editorials such as yours I am sure that the true meaning of your editorial would come to pass much quicker than you anticipate.

I enjoyed it so much that I stepped out of line of our organization to ask our plant manager to have it reproduced in a future issue of our "Turn-over Bulletin." I am sure you would grant permission to do so.

V. J. McDONALD
Supervisor—Dept. 1231

Ford Motor Co.
Monroe, Mich.

Alcoholism

Sir:
We would very much appreciate your kind permission to reprint in an early edition of "The Foreman's Digest" the article entitled "Alcoholism Costs Industry Too Much," which appeared in your Feb. 21 issue.

M. FRIEDLANDER
Editor

The Foreman's Digest
Mystic, Conn.

Retired Employees

Sir:
Would you kindly furnish us with any further available information concerning the plan for providing the retired employees of a British firm with light work, referred to on the Newsfront page of your Mar. 20 issue.

K. V. MINIHAN
Assistant Director

Commonwealth of Massachusetts
Div. of Employment Security
Boston

For further details we suggest you write to Rubery Owen, Ltd., Darlaston, Staffordshire, England.—Ed.

Metallizing

Sir:
I refer to the very interesting article, "Metallizing Cuts Marine Maintenance Costs," you published in your Jan. 31 issue.

I would very much appreciate your forwarding me a few reprints of this article.

Harry A. Allevin
Buenos Aires

H. A. ALLEVIN

Can You Help?

Sir:
As we know there are many kinds of steel in the market, the method of distinguishing steel from a steel pile is becoming an important matter. For the general shop man, the most simple way is to grind steel at a grinder. Different steels give different sparkles, thus we can distinguish it at a glance. The correctness depends upon experiments.

Would you kindly tell me if there is any special report or books dealing with this type of method, which is illustrated.

P. C. HUANG
Mechanical Engineer

Taiwan Sugar Corp.
Taiwan, China

Sorry we know of no published tests or books which graphically portray spark testing techniques. Perhaps one of our readers can help.—Ed.

Predictable Properties

Sir:
We would appreciate receiving three copies of the article "Heat Treated Properties Predictable in Complex Assemblies" which was published in your Feb. 7 issue.

This material is requested for our Engineering Library where it will be indexed and made available to our engineers and other personnel.

L. P. BRADLEY

McDonnell Aircraft Corp.
St. Louis

Swiss Request

Sir:
I am interested in the article "Mid-Century Reference of Heat Treating" and your list of national trade associations and technical societies, both appearing in your Jan. 4, 1951 issue.

Would you please send me a reprint of each.

W. HERTNER

Pratteln
Switzerland

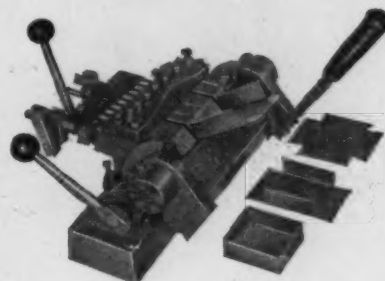
Shell Molding

Sir:
Would you please send us two copies of the article "Machines Make Shell Molds Automatically" appearing on p. 81 of your Apr. 19, 1951 issue, if available.

R. W. TINDULA
Chief—Metals & Minerals Section
Dept. of Commerce
Office of Technical Services
Washington

New! diacro BOX FINGER BRAKE

Four models 6" 12" 18" 24"
Capacity—16 Gauge Steel



3 TOOLS IN ONE

- 1 BOX and PAN BRAKE
- 2 STANDARD BRAKE
- 3 BAR FOLDER

One box or 10,000—can be economically produced with the versatile new Di-Acro Box Finger Brake.

Serves perfectly for all standard brake operations — an Acute Angle Bar converts the brake to a bar folder for locks, seams, hems and sharp angles.

The unique Di-Acro Open End Finger forms square or triangular tubes and other similar parts. The Box Finger Bar can be easily mounted on all standard Di-Acro Brakes.

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describing DI-ACRO Shears, Punches, Benders, Brakes, Notchers, and Rod Parters — also Power Shears and Benders.



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Please send 40-page catalog including "Die-Less Duplicating" Engineering Service offer.

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ADDRESS
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Sea water cure for lagging steel production

A PLAGUE of steel furnace production is down-time for bottom repairs. Good medicine for excessive repairs is Permanente 165 periclase ramming mix—derived from sea water magnesia of highest purity.

One of the most important developments in furnace construction in the last decade, Permanente 165 has an MgO content of more than 95% after burn-in. And Permanente 165 bottoms retain higher strength during prolonged use.

Accurately sized, pre-shrunk periclase grains give high density. Full depth bond is assured because patented Permanente 165 bonds itself by means of crystal-bridging.

This high refractoriness, plus great resistance to chemical attack, means less down-time for re-

pairs between heats, increased tonnage per year. Breakthrough danger is reduced to a minimum!

YOUR Kaiser refractory engineer will give prompt attention to your refractory problem —will offer, where desired, research, design and installation service to give you maximum production most economically. Write for descriptive literature on Permanente 165 and on the companion ramming mix, Permanente 84. Principal sales offices: *Chemical Division, Kaiser Aluminum & Chemical Sales, Inc., 1924 Broadway, Oakland 12, California. First National Tower, Akron, Ohio.*

Kaiser Chemicals

Pioneers in Modern Basic Refractories

Basic Refractory Brick and Ramming Materials • Dolomite • Magnesia • Magnesite • Alumina • Periclase

Fatigue Cracks

by Charles T. Post

In The Dark

To an innocent bystander, the steel industry labor crisis seems like a pretty critical proposition. Reading the headlines, we've always thought that the reporters who cover these crucial negotiations must be under tremendous pressure. After all, the decisions of a few men affect the lives of millions of people and the industrial future of the nation.

We asked John Delaney, your favorite family journal's Pittsburgh man and labor expert, to give us his reactions. You'll be surprised what he wrote:

"Last week's Washington press conference of Nathan P. Feinsinger, chairman of the Wage Stabilization Board, at which he announced recommendations of WSB for settling the steel labor case was different for at least two reasons: (1) All the newspapermen present knew for several hours what the recommendations were going to be because various board members, industry and labor alike, were 'leaking' information from the board meeting room, and (2) after everybody was comfortably seated in the meeting hall waiting for the press conference to begin, the TV cameramen got their various and sundry lighting equipment fouled up and blew a fuse, putting everybody in the dark, literally.

"We all sat there for a few minutes waiting for the lights to come on, but finally the word came that the meeting would have to be held in another room. So the mob had to move bag and baggage, some of us lugging folding chairs and everybody grumbling about the luckless TV men who, no doubt, were themselves thinking dark thoughts about the injustice of it all. Finally, though, we all settled down and Feinsinger proceeded to confirm what had been out on the news wires and on the radio for several hours.

"Everybody listened dutifully, a few guys tossed in a question or so to make it legal, and then we left to have dinner. By that time even the bars were ready to close and we were barely able to squeeze in one drink. Bars closed at midnight that night."

If you detected a note of pessimism in the news stories that appeared the next day, you now know that it was entirely due to subconscious doubt in the reporters' minds as to whether they were going to make the bar deadline.

Stoolies

Bill No 6993, introduced in the House of Representatives by Congressman Morrison provides "That in order to provide better working conditions for postal employees and to promote efficiency in the postal service, the Postmaster General is authorized and directed to furnish a flat-top stool for each clerk in a first- or second-class post office who performs the duty of distributing mail."

How does that post office motto go, now? "Neither heat nor cold nor lack of flat-top stools shall stay these carriers in the performance of their appointed rounds . . ."

Short-short Form

The government has just announced establishment of petty cash funds for its various agencies, enabling cash sales of \$50 or less to be made with only a requisition and a sales receipt. This, says your Uncle Samuel, will eliminate "six documents and sometimes more" and he hopes we're happy. We are. But the announcement calls the new petty cash "imprest funds." We looked up "imprest" in our Webster, which says the word refers to money advanced to soldiers, sailors and government employees, but is obsolete. Thus, we are not as impressed as we might be.

Puzzlers

The peddlers in last week's Puzzler found that by first selling their cloth at seven lengths for a dollar and then at three dollars a length they would all end up with twenty dollars apiece.

The chain problem didn't fool P. L. Willson, Halliburton Oil Well Cementing Co., and M. W. Minkin, Sam A. Barnett Metal Co.

We are still getting answers to the square lake puzzle. Last heard from are B. Mitchell, Smith & Wesson Inc.; P. L. Willson; R. W. Huff, Canton, Ohio, and H. M. Teague, Thomas A. Edison, Inc.

C. E. Norton, National Malleable and Steel Castings Co., usually finds our Puzzlers too easy so when he submits one himself you can be sure that it is not simple. Here is his latest. A right circular cone 4" in diameter and 6" high is cut into two unequal parts by a plane, parallel to and 1" from the axis of the cone. Find the volumes of the two unequal pieces.

Smoother Finish Longer Tool Life

with

PELRON Cutting Oils

Here's what production men have been looking for—cutting oils that will give smoother and freer removal of metal, with cooler operation and longer tool life.

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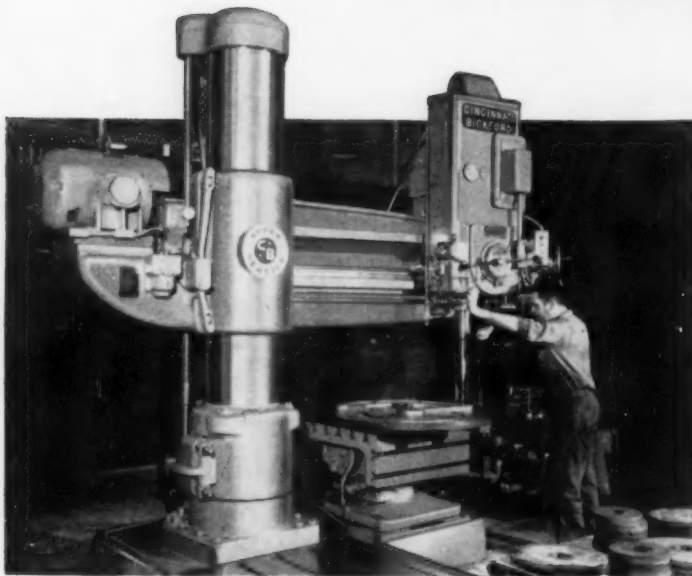
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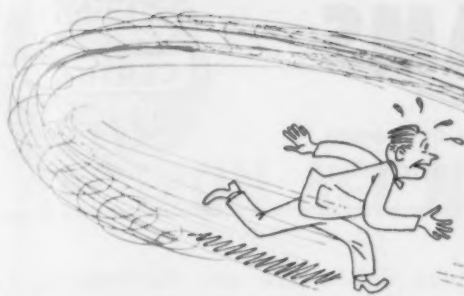
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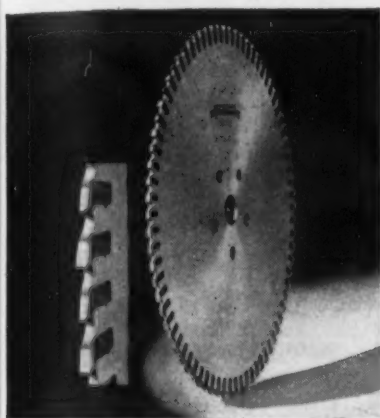


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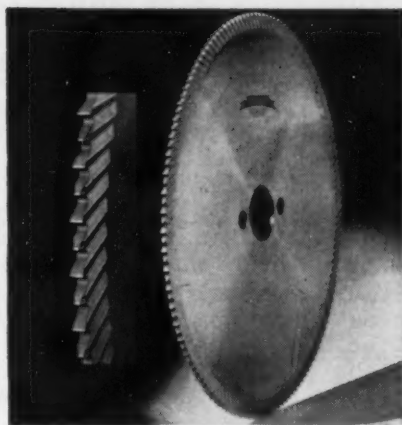
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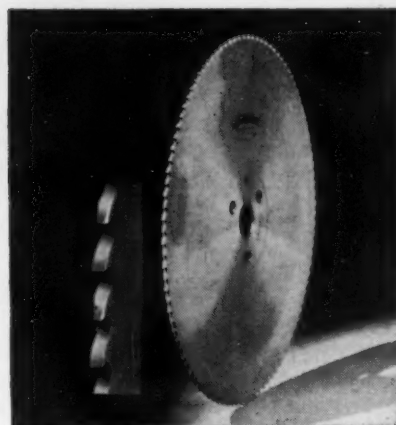
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For heavy production cutting, Simonds I. T. Saws are tops. Alternating square and beveled teeth "tri-vided" chips for easy cutting and clearance. An individual wedge securely anchors and aligns each tooth in the tough saw plate. What's more, this saw has maximum clearance for cool, free cutting . . . will stand an extremely high rate of feed . . . and teeth can easily be replaced singly or in complete sets right in your own plant by anyone of average mechanical ability.



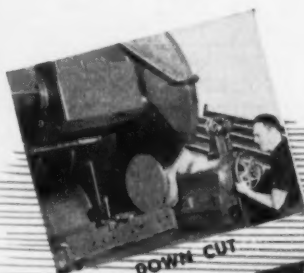
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Where you require a finer tooth saw or especially smooth cuts on production work, *this is your saw*. Long-lived high-speed steel toothed segments are securely held in a tough alloy steel plate by a special tongue and groove design. Teeth are alternately square and beveled for easy cutting and clearance of "tri-vided" chips. Simonds special grinding provides ample clearance directly below the cutting points, insuring free, cool operation under all conditions. Sharpening can be done on any automatic grinder.



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RYERSON STEELGRAMS



Following are a few paragraphs on the steel situation as we see it here at Ryerson. We hope you will find the information helpful in planning your steel purchasing.

Warehouse steel prices, frozen at 1950 levels throughout 1951, are now determined by new Government formula based on monthly average cost, including transportation charges, plus mark up. In beginning, we adjusted prices monthly to keep within Government Regulation. Now we have established prices on most products sufficiently below OPS ceilings to avoid monthly changes as prices vary.

Steel procurement: Though most steel products are still in short supply, production is catching up with demand on some kinds and sizes. On carbon steel bars, for example, larger sizes are short—but our stocks of smaller sizes are fairly good in both hot rolled and cold finished. And both hot and cold rolled carbon steel sheets are also coming into better supply—especially cold rolled, although 19 gauge and lighter are not in as good supply as the heavier gauges.

Our picture, briefly, on other products: Mechanical tubing—welded in good supply, seamless still tight. Alloy bars—over all stocks improving but still unbalanced as to sizes. Structurals and plates—demand still exceeds supply. And stainless steel—our stocks of nickel-bearing stainless are a little better (but use is still strictly controlled by the Government).

More on stainless—Now you only need money to buy straight chrome stainless—no Government allotments or ratings of any kind are required. And as for money, the straight chrome types cost less than the nickel-bearing stainless steels they replace.

While the use of chrome stainless was originally forced on manufacturers by Government restrictions on nickel, many companies have indicated that they may continue to use it—even when the 18-8 steels are again available. In other words, it took restrictions to reveal the possibilities of 430 and other straight chrome types. Ryerson has large and diversified stocks of these steels.

Another change in alloy steel stocks is taking place in line with a new NPA practice. Steels affected—interim and boron alloys. Warehouses will be limited to .60 nickel and .15 moly in carburizing types and .40 nickel and .15 moly in direct hardening types. These continuing changes emphasize again the importance of knowing exactly how unfamiliar alloys will react—knowledge supplied by the hardenability information sent with every shipment of Ryerson certified alloys.

Under the Government's Mills Plan, corporations must pay 70% of 1951 taxes in the first half of this year, and next year, law requires 80% payment in first half! Until last year, payment of only 50% in the first half was accepted practice. So this represents a considerable shift in the burden of cash requirements and may call for special fiscal planning by many companies. If your steel purchasing picture is affected, we suggest you discuss the matter with one of our experienced credit men.

Fabricators who apply to NPA for ratings to purchase metal working machinery are finding it is not necessary to have contracts directly connected with the defense program. Those with work essential to civilian economy can easily get a rating, too.

Babbitt procurement: Purchase of high tin babbitt still requires an M-8 certification, but Glyco babbitt from Ryerson, which has physicals equal to those of high tin types, is still available to all without a rating of any kind. And Glyco costs only about half as much...Our deliveries on alloy forgings are improving. Wire rope and chain—prompt shipment in a wide range of types and sizes.

As a substitute for cold drawn seamless mechanical tubing, Ryerson tubing specialists are recommending a welded tube identified as bright-finish hot rolled. this tube comes in a wide range of round and square sizes. Costs substantially less than the seamless and has a clean scale-free surface that takes paint very well.

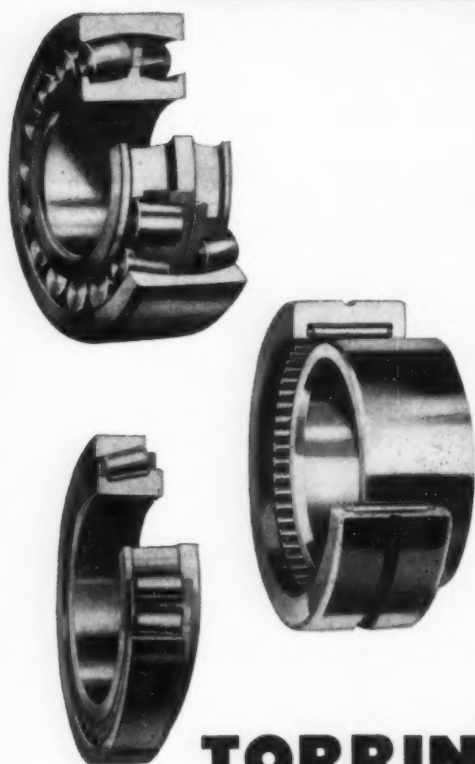
JOSEPH T. RYERSON & SON, INC. STEEL-SERVICE PLANTS AT: NEW YORK • BOSTON • PHILADELPHIA • DETROIT • CINCINNATI
CLEVELAND • PITTSBURGH • BUFFALO • CHICAGO • MILWAUKEE • ST. LOUIS • LOS ANGELES • SAN FRANCISCO • SPOKANE • SEATTLE • 3-21-52

THE IRON AGE Newsfront

- Total core loss on some grades of electrical sheet have been decreased as much as 20 pct through the use of a proprietary rare earth ladle addition. Experiments are continuing on grades containing up to 2-1/2 pct Si.
- Present plans are to lease rather than sell Method X machines. Negotiations are now underway for manufacture and marketing of the machines. Foreign licenses meanwhile have been granted to companies in England, Austria, and Germany.
- If the steelworkers get only half the amount they seek and if the steel industry gets a price increase to cover that amount, next year's federal budget will get it in the neck. For instance, higher costs on military goods on order at the end of this June will add at least \$5 billion to next year's budget deficit.
- Complete palletization and packaging of incoming ferroalloys which are loaded into top charging storage bins are a feature of a new electric furnace shop which will melt its first heat this week.
- Air flow studies at 10 times the speed of sound are under way by Navy Ordnance. The air is heated to 900°F to prevent liquidation.
- Lake movement of iron ore is not expected to receive much assistance from Canadian ore boats until the season is well underway. Large amounts of Canadian grain to be moved prevent their early participation.
- Carbon dioxide gas is being used as coolant in production machining of titanium. CO₂ cuts the metal's tendency to smear, ups tool life, and produces oil-free chips which command a premium scrap price.
- One integrated steel company has completed a study showing that the Wage Stabilization Board recommendations represented a cost increase of more than 36 cents per hr. Industry average is a little less than 30 cents.
- A special requirement for tool steel ingots weighing about 20 tons poses the problem of quality. So far the largest ingots made in this country to tool steel standards have only weighed 7 to 10 tons.
- A Midwestern manufacturer is planning a 2000-gpm central coolant and cleaning system for his grinding department, with overhead tanks serviced by magnetic chip separators.
- United Steelworkers of America is trying to break steel industry resistance by signing up individual companies. One of the smaller companies was offered a contract for 17½¢ last week. Note—they broke the industries' front in 1949 by signing up one company on pensions.
- Specialty steel producers would need considerably more than the \$12 per ton price boost mentioned by tonnage mills to offset proposed wage concessions. Specialty mills require 79 man-hours to produce a ton of steel, compared to industry average of 17 man-hours per ton. On a product basis, 800 hours are needed to produce 1 ton of stainless seamless tubes; 535 hours per ton of high temperature alloy; 190 hours per ton of tool steel; 65 hours per ton of stainless strip; and 35 hours per ton of silicon sheets.



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STEEL: Did Truman Doublecross Wilson?

Wilson warned Truman 2 months ago . . . Said country in danger of inflation . . . When WSB favored labor Wilson held out for steel . . . Strike looms unless miracle comes—By Tom Campbell.

Was Mr. Wilson double-crossed by President Truman in the steel wage-price case? Mr. Truman says "No." But what are the facts behind this most confused mess that has ever hit the steel industry?

More than 2 months ago Mr. Wilson warned the President about inflation—if a sixth steel wage and price round went through. The former defense mobilizer did feel that steel labor was entitled to 5¢ or 7¢ an hr—but no more. He did not think that there should be any large steel price increase.

Mr. Truman, at Key West, more than 2 months ago, agreed that he would support Mr. Wilson. Early this week the President stated that he saw nothing wrong with the Wage Stabilization Board's recommendation that would advance steel wages 26¢ an hr (WSB estimate). Doublecross No. 1!

Temporary Agreement—A little more than a week ago Mr. Wilson again visited Key West about the steel problem. This time he knew that the WSB recommendation of 26¢ an hr was almost in the bag for labor. He fumed about this. He felt that if such a wage award were granted steel firms should have corresponding price compensation.

This time Mr. Truman agreed with Mr. Wilson that the steel firms should have a price increase and that there should be no strike. That's what Mr. Wilson thought. On that basis he flew back to Washington feeling happy. Now

he might be able to avert a strike and hold things as well as could be expected under such a WSB recommendation.

Last Wednesday, Mar. 26, Mr. Wilson indicated to steel people that they could expect a price increase. It might not be as large as they wanted, but it would be one that would partially cover direct and indirect costs of a wage increase.

The lid blew off last Friday, Mar. 28, when Mr. Wilson learned that the President did not see things as he did, or as Mr. Wilson had been led to believe. With the President running out on Mr. Wilson there was—doublecross No. 2. Mr. Wilson promptly resigned.

It Didn't Jell—The real reason why steel people and labor had no meeting at New York Monday of this week was simple—there was nothing to talk about. The meeting had been called to bargain on the WSB recommendations — pos-

sibly to reach a contract on a 12-month basis instead of 18 months. Another try would have been made to reduce the package to around 21¢ or 22¢ instead of 30¢ per hr. by industry estimate. Had that happened on Monday or Tuesday of this week the promise Mr. Wilson thought he had from Mr. Truman could have been put into effect to avert a strike.

Now the steel industry looks squarely at a long bitter strike, since it has "no friend at court." With Mr. Wilson out, it is not expected that Roger L. Putnam, Economic Stabilization Administrator, or Ellis Arnall, Director of the Office of Price Stabilization, will give too much heed to what the steel firms want.

There may be a near miracle. But that might not be enough. It will take a first class miracle to prevent a recurrence of events in 1946. Then a deadlock caused a strike of more than a month, lost 6 million tons of steel and \$60 million in wages.

The 1946 strike was settled when Mr. Truman okayed an 18½¢ an hr wage raise and a \$5 a ton steel price boost. There is little reason to believe that this fracas will be any different. At the last minute Mr. Truman may see what his double talk has done to the industry and the country. If that is the case a quick settlement could be reached. But that is a dim possibility.

Sitting Pretty—Mr. Murray feels this may be the last Democratic Administration for awhile. He feels that what the WSB recommended, the union is entitled to. He also has it from the President of the United States that the



"... Mr. Wilson is ready to stake his job on holding the inflation dike. He has said so privately in no uncertain terms . . ." THE IRON AGE, Jan. 17, 1952, p. 127.

WSB recommendation "does not constitute any real breach in our wage stabilization policies." How could Mr. Murray not hold out for the recommendation?

Lost in the shuffle is B. F. Fairless' original argument that steel wages and prices should stay unchanged. He believes that would forestall another wave of inflation. It is a sure bet that Mr. Fairless will not give in to a big wage hike unless Mr. Truman allows a price increase to match it. That price increase will be on the basis of \$6 a ton for a 20¢ an hr wage increase, or \$9 a ton for a 30¢ an hr wage increase.

No Retreat—Hidden in the cross talk has been the union demand for a union shop. There will be no giving in on that item. Steel firms will take a strike before they agree to a union shop—even if the wage and price fracas is settled.

If the steel industry closes down on Apr. 8 it will mean a loss of steel at the rate of 2.1 million tons a week. If a strike lasted a month it would mean a loss of 9 million tons of steel.

Steel users would soon find themselves in a dither about supplies if a steel strike should take a turn for the worse and become a long drawn-out struggle for the principle that prices must go up if wages go up.

In A Nutshell—Steel people are hopping mad at the socialistic tendency of some people in Mr. Truman's group to look with disgust at profits—even though profits are needed to bring steel capacity up to 120 million tons, to pay millions for iron ore developments in Canada and South America and to enable steel company stock to find takers.

Much hinges on the outcome of the steel wage hassle. If a wage increase and price hike come through eventually—as they must—it will be a signal for wage and price changes in other industries despite anything said in Washington to the contrary.

Steel Wage-Price Timetable

1951

Nov. 15—USW presents 22 wage demands.

Nov. 27—Negotiations begin.

Dec. 17—Union authorizes strike call for Dec. 31.

Dec. 22—Truman refers dispute to Wage Stabilization Board and appeals to the union to forego a strike.

Dec. 27—Union cancels Dec. 31 strike date and orders special convention for Jan. 3.

1952

Jan. 4—Union convention postpones strike to Feb. 24.

Jan. 7—WSB panel hearings begin in Washington.

Feb. 16—Hearings conclude in New York.

Feb. 21—Union again postpones strike, this time to Mar. 24.

Mar. 17—WSB promises recommendation by Mar. 20, asks strike postponement to Apr. 8.

Mar. 20—WSB recommends 12½¢ per hr wage increase retroactive to contract termination dates, in most cases Jan. 1, 1952, 2½¢ per hr effective July 1 1952, and 2½¢ effective Jan. 1, 1953. Also recommends union shop, a 5¢ per hr reduction in the North-South differential, and increases in shift differentials of 2¢ and 3¢, respectively, 6 paid holidays, double time if worked, 1½ time for Sunday work as such, effective Jan. 1, 1953. Guaranteed annual wage remanded for further study.

Mar. 21—Union accepts WSB recommendations, postpones strike deadline to Apr. 8.

Mar. 26—Inconclusive union-company meetings recessed indefinitely.

Mar. 30—Defense Mobilizer Charles E. Wilson resigns in dispute with President Truman over effects of WSB recommendations and price relief for steel industry.

Mar. 31—Union scheduled to meet in New York with six largest steel producers in last-ditch effort to work out a settlement. Meeting postponed.

Strike

Industry despairs of early agreement . . . Feels time is too short.

By midweek there was little word on the steel-wage negotiations. The meetings that had been called were put off until later in the week. But even then it was doubted if any real progress would be made. The reason: The original call had been based on the assumed government approval to raise steel prices.

It was hoped that before the week was out steel firms would have some kind of a commitment from Mr. Truman's office as to where they stand. Whether it will be worth any more than the one to Mr. Wilson remained to be seen.

There was a lot of ground for the steel firms to go over with government price people before any new ideas on prices could take shape. The same government price people who had been briefed time and again must be reacquainted with the facts in the steel case.

Mr. Truman threw cold water on the steel firms' case because he felt the problem should have deep study. There was very little time for this study—if a strike were to be averted. The betting in steel circles late Tuesday night was that there was only one chance in four that there'd be no strike.

Specifically, steel firms will not give an inch on wages unless there is a price increase. Unless they get this it looks like the industry will be plunged into a long and serious strike. The steel company price formula means: If wages were to go up 15¢ an hr the price would increase \$4.50 a ton; if wages were to go up 20¢ an hr the asking price would be \$6 a ton; and if the full recommendation of 30¢ were granted they'd ask \$9 a ton.

There never was a \$5 a ton figure mentioned at Washington, as carried in the newspapers. The whole setup was based on a formula which represented a long study of wages and prices by one large steel firm.

ENGINEERS: How Close to Management?

How sound are management's communication lines to engineering echelons? . . . Engineer society publishes result of survey . . . Industry has sought improvement, room for more.

How willing is management to listen to its engineers? Does it have receptive communications lines to its engineering echelons that thwart their disinterest in company affairs and permit a flow of understanding both upwards and downwards?

National Society of Professional Engineers has tussled with the broad subject of engineering-management relations. It has recently published results of a questionnaire survey of 350 companies employing 2 million workers and 45,000 engineers.

General conclusion is that industry is aware of the need for sound communications lines to its engineers. Concrete programs have been established—but there is room for improvement.

Interest Proven—NSPE reports that industry welcomes opinions and suggestions of its engineers. Steps have been taken by the great majority of firms to draw suggestions from engineers. Most try to make the engineer feel at home in management by informing him of company policy and economics. Most realize the need of seeding engineering ranks with management information so that a "farm" of executive talent can be established.

The circular system of engineering-management relations involves person to person contact and free exchange of ideas. But this plan cannot be easily adopted by large corporations employing hundreds of engineers. NSPE has mentioned, though, that circular or round table communication is the "happy" method.

When the line of communications forms an inverted "Y"—with the chief engineer at the top, channeling information down the line in a disciplined,

big business way—tendency for the engineers at the fringe is to clam up on suggestions. Morale would not be high. But NSPE admits the "Y" system is the most efficient on particular problems.

To check adaptability of the "Y" system, minor changes were thrown into the proceedings. "Y" was too specialized to adapt either as quickly or as satisfactorily as the circular method, which had more survival power.

Eager to Learn—The majority of companies reported to NSPE that engineers were eager to get the facts of their company. Greatest interest was in personal opportunity for advancement, expansion, and new products. Engineers were much less interested in security, benefits, and financial affairs.

Assuming that engineers can get adequate answers to their personal questions, it is clear that it's management's job to educate the engineer to the company's sales and economic situation.

How does industry communicate

with the engineer? Primarily, the engineer gets the dope from his supervisors. Personal discussion involving talks by executives, outranks other planned contact methods. Most firms use a combination of methods, including newsletters and seminars.

But 67 pct of companies reporting said that no special provisions beyond the information programs for all employees have been made to enlighten the engineer. Larger companies engaged in highly technical work pay greater attention to the engineer, circulating technical papers and newspapers.

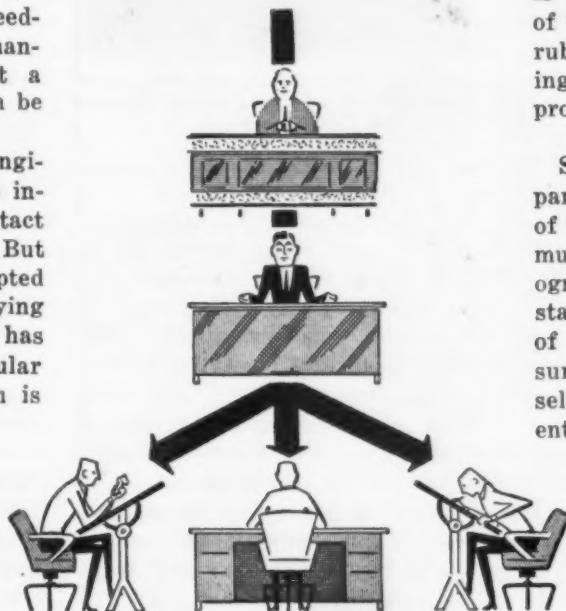
Professional Status—NSPE concluded that the slight trend to unionization among engineers had not adversely affected communications but that the picture could be changed if engineers went in for unionization in a big way. The Society suggests that engineers preserve their professional status and not "voluntarily" join a union.

Management expects to draw executives from its engineers. And it expects engineers to be concerned with management problems.

The great bulk of firms reporting look to the engineer as management material. Yet most companies report having no particular information plan on management. If they do it's in the early phase of the engineer's employment and rubs off with the years. Continuing personal talks and training programs are desirable.

Sincerity First—Before a company can institute an effective line of communication to engineers, it must be genuinely sincere in recognizing the need and benefits. A starting point is getting support of top management and actually surveying the engineers themselves to find out flaws in the present system and discovering better and perhaps new methods.

Conducting periodic discussion meetings especially rigged so that participation by all is encouraged is a recommended method.



SHELLS: Ordnance Sets Sights High

Army ammunition procurement program aims at full production in 1953 . . . Switch from brass to steel, iron will hit plate, bar stocks . . . Orders to total \$4 billion—By K. M. Bennett.

Despite numerous obstacles, the ordnance shell program is gaining the momentum needed to reach full production in early 1953.

Stocks of steel bar and plate stock will be hit with increasing severity. Heaviest inroads will be made in 5/8 in. plate and 2 7/16 in. cold drawn bar supplies.

Why—There are three reasons for the continuing rise in these steel needs.

(1) Shell procurement is still on the way up, despite cutbacks in parts of our defense program. Economy is the word of the hour and cost is an extremely important factor in considering new shell production methods. But Army Ordnance plans to expand shell production into early 1953. It might even hit the peak as early as fourth quarter '52.

Currently, books at the Ordnance Ammunition Center, Joliet, Ill.—coordinating center for the Army shell program—call for \$2 billion of assorted mayhem, including mines, rockets, shells, grenades, and bombs. By 1953, there will be an estimated \$2 billion more to be spent for military explosives.

(2) The new Army will use more and more steel shells with ferrous parts. Brass as a shell component is moving into the background. Replacing it in shell cartridge case and fuze components; malleable iron, sintered iron, and drawing-quality steel.

Ordnance is grimly earnest about the move. If steel has been difficult to obtain, then brass and copper have been "almost impossible." Of the big gun shells, only the giant 120 mm has not emerged from the drawing boards in a steel case model. That too may be converted to steel by the end of the second quarter. Cast malleable

iron booster bodies and fuze bodies in the M-48 fuze, workhorse of heavy caliber fuzes, may absorb 1250 tons of malleable iron monthly by the end of the year.

What Kind — Ordnance heads put their consumption of steel for forged shells (projectiles only) in the first quarter of 1952 at 282,000 tons. The program in projectiles for '53 will be just as big and



ON THE WAY: Women ordnance workers put finishing touches on shells at Ordnance Ammunition Center, Joliet, Ill.

probably larger. For fuze and component production they've been using cold drawn bar stock in FS1117 and FS1118. They have accepted as substitutes 1020, 1025, 1028, 1029, 1030, and 1035 to 1940 steels. Bessemer 1111, Bessemer 1112, and Bessemer 1113 steels are frowned on, and accused of brittleness at low temperatures.

Some boron steels have been tested for rocket motor tube use in the 3.5 bazooka charge. Shell forging steel requirements may top

110,000 tons per month before the year's end. Production of the M-48 fuze, also cold drawn stock, consuming 1117, and 1137 steel, can be expected to climb.

Steel Cases—The big switch will come in cartridge cases. The 57, 75, 90, 105, and the Long Tom 155 mm will be equipped with steel shell cases, calling for considerable 1010 to 1030 soft annealed plate, averaging about 5/8 in. Consumption here should hit 63,000 tons per quarter when the expansion curve levels later this year.

In explosives, Ordnance procurement of alcohol, sulphur, anhydrous ammonia, and toluene can be expected to climb—but in no amount that could affect the national supply save possibly in toluene.

(3) More steel will be needed for more shells to build up a reserve of finished explosives. In replacing manpower with firepower, Army Ordnance has stepped up ammunition production.

Bottlenecks—To figure a peak production date and subsequent levelling off, several retarding factors must be considered. A small number of specialized machine tools are still needed, and are slowing the attainment of full production. And there is now a fair supply of brass cartridge cases in some sizes still in storage.

Cost cutting angles that will also be small bottlenecks include shell mold malleable castings for fuze and other component parts, with malleable iron replacing brass and aluminum bar stock; welded steel tube replacing seamless and brass tubing; cold extrusion for projectiles becoming a primary method, with a saving of 12 lb of scrap on a 105 projectile; 50 lb of scrap on a 155, and substitution of aluminum die castings for parts machined from aluminum bar stock.

Ordnance carefully points out that new techniques have allowed them to make the substitutes with equal performance standards and with no loss in safety for workers or the men who will use them.

PRESSES: Giant Program Sails Ahead

Air Force breaks into clear with mammoth press program . . . Forging presses range to 50,000-ton capacity . . . Delivery through 1954 . . . Bigger ones later?—By W. V. Packard.

After several years of stormy buffeting the Air Force has finally gotten under way with a heavy press program that will help swing the battle of plane production in our favor. Forging and extruding operations of the monster presses will speed output and lower costs. By forming much larger parts, the giant presses will do the work of many smaller units and eliminate much fabrication of smaller parts produced on present equipment.

The forging presses will range from 18,000 tons to 50,000 tons capacity. Extrusion presses will range from 8000 tons to 25,000 tons capacity. Orders have been spread among six builders. Seven aircraft parts fabricators have been selected to share in the program. Air Force will keep title, allotting presses on a lease basis. Deliveries will continue from this spring through 1954, or 1955. If additions are made to the \$210 million program, delivery will have to be extended accordingly.

Not That Big—Present plans do not include building of the Goliath 75,000-ton forging press (THE IRON AGE, Jan. 18, 1951, p. 75) originally advocated by the Munitions Board. But even that is not considered a ceiling on size. Some sources believe experimental work will indicate need for presses of the future rated at 150,000 tons.

The largest press now operating in this country is an 18,000-ton forging press. Wyman-Gordon Co. of Worcester, Mass., is the operator. This press was brought here from Germany.

German aircraft producers were the first to utilize very heavy presses. After the war both Russia and the United States acquired some of them. Since then U. S. press experts have been studying the German prototypes.

Information thus learned has been helpful in developing the present Air Force program.

Fast Use—The Russians have made rapid utilization of their Nazi swag. It is generally conceded that they have put into production a German press of 33,000 tons capacity—actually it is composed of two 16,500-ton presses operated in tandem. This is almost twice as big as the largest press we have operating. The Russians are building a press of 50,000 tons or more capacity, which will match the largest press so far ordered by our Air Force.

Investigation aimed at finding how to fully utilize the presses is a continuing program at Adrian, Mich. Bohn Aluminum and Brass

has one German forging press of about 16,000 tons and three other smaller German backup presses. Two extrusion presses of 12,000 and 25,000 tons are assigned to the same plant as soon as delivery can be made. Auxiliary equipment will start arriving at this heavy press proving ground in May.

Advantages—Here are some of the advantages which are expected to result from these heavy presses:

(1) Bigger parts can be forged or extruded in one piece. This will allow much greater freedom to designers. Some design features previously considered unfeasible can now be incorporated.

(2) Forged or extruded parts are stronger than units that have to be manufactured and joined. Forging or extruding the metal increases its yield strength.

(3) Production will be made faster. The huge presses can make large plane sections in a fraction of the time required by present methods. This will

AIR FORCE HEAVY PRESS PROGRAM

Builder	Location	Type	Size (tons)	User	Location
Baldwin-Lima,Hamilton	Philadelphia	Forging	25,000	Harvey Machine Co.	Torrance, Calif.
E. W. Bliss Co.	Salem, O.	Forging Forging	35,000 25,000	Kaiser Aluminum & Chem. Corp. Kaiser Aluminum & Chem. Corp.	Newark, O. Newark, O.
Leewy Construction Co.	New York	Forging	50,000	Wyman-Gordon Co.	Worcester, Mass.
		Forging	35,000	Wyman-Gordon Co.	Worcester, Mass.
		Extrusion	20,000	Aluminum Co. of America	Lafayette, Ind.
		Extrusion	12,000	Curtis Wright Corp.	Caldwell, N. J.
		Extrusion	8,000	Kaiser Aluminum & Chem. Corp.	Halothorpe, Md.
		Extrusion	8,000	Kaiser Aluminum & Chem. Corp.	Halothorpe, Md.
		Extrusion	8,000	Reynolds Metals Co.	Phoenix, Ariz.
Lombard Corp.	Youngstown, O.	Extrusion	12,000	Harvey Machine Co.	Torrance, Calif.
Mesta Machine Co.	Pittsburgh	Extrusion	12,000	Reynolds Metals Co.	Phoenix, Ariz.
		Extrusion	12,000	Reynolds Metals Co.	Phoenix, Ariz.
United Engineering & Foundry	Pittsburgh	Forging	50,000	Aluminum Co. of America	Vernon, Calif.
		Forging	18,000	Wyman-Gordon Co.	Worcester, Mass.
		Forging	35,000	Aluminum Co. of America	Cleveland
		Extrusion	20,000	Harvey Machine Co.	Torrance, Calif.
Germany	.....	Forging	8,000	Aluminum Co. of America	Torrance, Calif.
		Forging	35,000	Harvey Machine Co.	Torrance, Calif.
		Forging	35,000	Harvey Machine Co.	Torrance, Calif.
Schloemann Eng. Co.	.....	Forging*	16,500	Aluminum Co. of America	Cleveland
		Forging*	18,000	Wyman-Gordon Co.	Worcester, Mass.
Schloemann Eng. Co.	.....	Extrusion	13,500	Aluminum Co. of America	Cleveland

*—In operation.

Production

permit high volume production if needed.

(4) Less strategic material will be needed per unit of output. Scrap loss resulting from present manufacturing methods will be greatly reduced because the metal is formed to the desired shape instead of cut and joined.

(5) The huge presses will permit a great reduction in man-hours and machinery. One of the presses can do the work of a good many special and general purpose machines and their operators.

(6) It is hoped that costs will be greatly reduced. If the presses are operated near capacity, there is no doubt that costs will be much lower than they are now. But if volume output is not attained, there will be less saving, possibly none at all.

Other Uses — Primarily, the presses will be used to form light metal (aluminum or magnesium) parts. But they can also be used to work steel and other metals. In addition to peacetime production of civilian aircraft, they may

IRON & STEEL: February Output By Districts

As Reported to the American Iron & Steel Institute

DISTRICTS	BLAST FURNACE —NET TONS	Number of Companies	Annual Capacity	PIG IRON		SPIEGEL, FERRO- MANGANESE		TOTAL				Pct of Capacity	
				Feb.	Year to Date	Feb.	Year to Date	Feb.	Year to Date	Feb.	Year to Date	Feb.	Year to Date
Eastern.....	12	13,983,580	1,107,109	2,249,546	28,575	55,085	1,135,684	2,304,633	102.6	100.5			
Pitts.-Yngstn.....	17	27,488,600	2,161,718	4,428,676	27,742	55,951	2,189,480	4,485,626	100.7	99.6			
Cleve.-Detroit.....	7	7,501,100	545,650	1,139,327			545,650	1,139,327	91.9	92.7			
Chicago.....	7	15,703,740	1,175,859	2,418,012			1,175,859	2,418,012	94.6	92.9			
Southern.....	8	5,648,620	449,421	894,747	5,612	11,257	455,033	906,004	101.7	87.8			
Western.....	3	3,476,700	262,916	570,591			262,916	570,591	102.8	100.1			
Total.....	35	73,782,340	5,722,673	11,701,900	61,929	122,293	5,784,802	11,824,193	99.0	97.8			

DISTRICTS	STEEL —NET TONS	Number of Companies	Annual Capacity	TOTAL STEEL (Incl. Alloy Steel, Carbon Ingots)				ALLOY STEEL		CARBON INGOTS	
				Feb.	Year to Date	Pct of Capacity		Feb.	Year to Date	Feb.	Year to Date
						Feb.	Year to Date				
Eastern.....	23	21,709,870	1,739,555	3,541,906	101.2	99.5	133,038	275,777	362,904	726,795	
Pitts.-Yngstn.....	33	42,350,760	3,351,938	6,914,502	99.9	99.6	487,578	1,011,126	396,276	*820,292	
Cleve.-Detroit.....	8	10,485,380	800,126	1,680,190	96.4	97.8	44,220	117,568	86,178	171,677	
Chicago.....	15	22,258,500	1,797,681	3,681,836	102.0	101.2	145,188	296,989	280,245	*673,588	
Southern.....	10	5,291,260	435,827	905,285	104.0	104.4	7,507	14,635	1,744	3,762	
Western.....	12	6,491,900	532,083	1,059,626	103.5	99.6	8,634	18,731	40,830	77,984	
Total.....	79	108,587,670	8,667,210	17,793,327	100.7	100.0	826,185	1,735,026	1,168,174	*2,373,138	

* Revised.

eventually be used to turn out volume production of parts for railroads, autos and other industries.

These goliath presses will dwarf anything now known to industry. Some of them will be almost as

long as a ten-story building, though they won't look it after installation. This is because a good portion will be underground to protect vital parts as much as possible in case of bombing.

Fuel

Low-Sulfur Oil:

PAD office closes as officials see low-sulfur oil shortage licked.

Petroleum Administration for Defense closed its Chicago office Monday, Mar. 31, and stole silently away. PAD officials believed the low-sulfur fuel oil problem had been licked.

"Bunker C," Grade 6, the heavy oil that fires openhearth furnaces, had been in low supply since World War II. PAD opened its Chicago field office when the pinch grew tighter during the 1950-1951 heating season. The office was re-activated for the '51-'52 heating season, but PAD field men found no need for expediting action.

Trouble Ahead—Yet for "Bunker C" users there may still be difficulty. Although reserves of the

fuel are up in the Midwest, real demand will not hit until fourth quarter. In the past winter, a new natural gas pipeline came into the Chicago area just as the heating season got under way. With few domestic users able to utilize the pipeline immediately, there was a surplus of natural gas available for the openhearth.

Rather than the usual 44 pct cut in natural gas available for wintertime industrial use, there was a cut of only 8 pct. Increased availability of natural gas for mixing with Bunker C meant less use of fuel oil during bad weather periods when interruptible users would normally have been cut off.

By fourth quarter, 1952, when domestic users are making more extensive use of the new natural gas source, Bunker C users will lean heavily on reserve oil.

More Demand—With steel capacity on the increase, fuel oil demand should rise. An open-hearth will consume from 21 to 35 gal of atomized Grade 6 for each ton of steel produced. Large steel producers prefer a fuel having 0.75 to 0.50 sulfur content. Commercially, low-sulfur fuel oil can be anything with a content of 1 pct sulfur or less.

Mills, to eke out their supply, would buy fuel oil having sulfur content in excess of the most desirable level—unless a larger amount of Grade 6 is available in the area next year.

Oil men believe that five new water terminals, and new, more strategically placed refineries in Illinois and the Dakotas will enable shipment of ample low-sulfur fuel.

ZINC: Galvanizers Get Quota Help

NPA second quarter boosts aid output battle . . . Hope for steady improvement . . . Lower demand by other users eases supply . . . Prime Western still short — By E. C. Beaudet.

Producers of galvanized steel products hampered by zinc shortages are experiencing some relief in their battle to boost output. Zinc allotments for March and April were increased by the National Production Authority and producers are hoping for continued improvement through the rest of the year.

Part of the increase in allotments was due to a falling off in demand from zinc die casters whose heavy output for the automotive industry suffered from cutbacks in automobile production. Other users of zinc such as producers of brass mill products, rolled zinc products and zinc anodes also reduced requirements thus making more available, according to government officials.

During March and April steel producers were allotted an average of 29,000 tons of zinc. This is a long step forward from last October when mills were allotted only 18,200 tons. Aside from the lower demand from other users, allotments were strengthened by higher Canadian shipments which totalled 6200 tons in March as contrasted with an average of 1350 tons in January and February.

Still Not Perfect—However, the picture is not so rosy as it seems. A large part of the increased allotments was made up of high grade zinc not highly desirable from most galvanizers' point of view. For one thing it costs on the average of \$30 per ton more than the prime western grade. This results in increased costs of about \$22 per net ton for galvanized sheets. For another it is not so good for hot galvanizing purposes and is generally not preferred by producers. Although highly acceptable for continuous electrolytic lines, these lines use only about 5 pct of the zinc used in galvanizing.

Prime Western zinc is still in

short supply and little improvement is expected before the end of the year. Overallocation of Prime Western has caused producers to scramble to find a home for their tickets. Government officials are expecting some help from Mexican producers after the middle of the year. Now tied up with foreign contracts, Mexican production is expected to be freer after June.

An anticipated drop in world market prices of zinc coupled with an increasing dollar shortage abroad could also funnel more zinc into American markets.

Zinc production in this country was hurt slightly by strikes in the copper mines last summer. Since zinc and copper are usually found together the stoppage of copper mining was reflected in the output of zinc. Another factor impeding domestic zinc production is toll agreements with foreign nations which permit the use of domestic smelting capacity for the refining of foreign ores. Reliable sources estimate this takes about 10 pct of American capacity.



"Well, I couldn't get as much zinc as we need but I drank some of the best excuses I ever tasted."

Galvanized sheets will be in greater supply during the second quarter in view of the government directive boosting production 25 pct over the first 3 months of the year. About 200,000 tons will be produced per month.

While growing availability of zinc is enabling mills to increase second quarter output, production is not expected to catch up with demand. Major producers are sold out through the second quarter and demand is expected to hold at high levels through the third. Some softness has been noticed by premium-priced mills but major producers report they would be able to increase production of galvanized products from 10 to 30 pct and still not saturate the market if zinc were freer.

New Zinc Plant in Canada

Golden Manitou Mines Ltd., Toronto, Canada, will build its proposed \$15,600,000 zinc refinery for eastern Canada in Chicoutimi, 140 miles from Quebec City in Quebec.

Construction will start in about 6 months and it will take 2½ years to complete the project. The refinery alone will cost about \$12,600,000 and power facilities and other subsidiary needs a further \$3 million.

Concentrates for the refinery will be shipped from Val d'Or in Quebec, where Golden Manitou and Barvue Mines will be able to supply at least double the proposed initial capacity of 100 tons of metal daily by the electrolytic process.

Capacity of the plant may be increased later, Golden Manitou reports.

Golden Manitou, which controls Barvue Mines, will jointly finance the new refinery with American Zinc Co., of Illinois, on a 50-50 basis. The refinery will be operated by a new company, American Quebec Zinc Refinery Co., Ltd. It is understood that most of the zinc produced in the new plant will be for delivery in the United States under a contract made some time ago with American interests and Barvue Mines Ltd.

QUOTAS: More For Civilian Goods

Non-defense items get larger controlled materials allocations for third quarter . . . Defense allowances stay at same levels . . . Over-allotment, not better supply, does the trick.

Tentative plans for allocation of controlled materials for the third quarter as announced by Defense Production Administration are intended to give a better break to civilian goods.

Most claimant agencies for civilian production have been given increased tonnages of steel, copper, and aluminum for allocation, while the military and defense take is held to about the second-quarter levels.

In a letter to the Senate Banking Committee, DPA Boss Manly Fleischmann said the higher civilian allotments would not jeopardize military supplies, and that all defense needs are assured.

The Method—Actually, the generosity is achieved through over-allotment, rather than by sizable potential increases in the availability of supplies. Allotments as compared with estimated supplies are:

Steel, allotment of 25,409,360 tons against supplies of 21,611,800 tons, nearly 118 pct; copper, 755,898 tons against 650,500 tons, about 116 pct; and aluminum, 401,575 tons allocated against 355,000 tons of supply, about 113 pct.

The over-allotment is necessary, it was noted, in order to balance attrition, that is, to overcome the tonnages not claimed by holders of CMP tickets. This has been particularly noted in some categories of carbon steel.

Included in the increases in allocations was the NPA Metalworking Machinery & Equipment Div., which is the claimant agency for machine tools. It gets an increase of 44,000 tons of steel, more than 1 million extra lb of copper, and 2.2 million lb of aluminum.

Biggest beneficiaries in the civilian categories were the automotive manufacturers and makers of consumer durables.

Auto makers are to get sufficient materials—3,294,000 tons of steel, 121,000,000 lb of copper, 65,625,000 lb of aluminum—to permit production of 1,050,000 passenger cars with a permissible ceiling of 1,500,000 units.

Consumer Durables Div. is allowed an extra 25,000 tons of steel, an additional 18 million lb of copper, and an extra 21 million lb of aluminum, for making refrigerators, washing machines, etc.

Other major increases went to claimant agencies for electrical equipment, freight cars, motor trucks, highways, schools, and other institutions.

Generally, DPA says, the supply of steel will not be substantially greater during third quarter than in the second. Aluminum output is expected to increase but copper will remain as tight as ever.

Industry Controls This Week

Auto Wreckers—Amendment to M-92 removes purchase restrictions in the following quarter on wreckers who in any given period wreck out their inventory of 1939 or older cars.

Custom Smelting—Copper, lead, and zinc smelters may adjust ceiling prices to allow for certain cost increases since July 1, 1951, according to SR 94, GCPR.

Disaster Areas—Dir. 2, CMP Reg. 6 authorizes priority assistance for reconstruction in any designated major disaster area.

Machine Tools—Amendments to CMP Regs. 1 and 3 provide that defense order priority ratings for machine tools may be passed down through the entire chain of procurement to include components and parts and the controlled materials for those parts. New symbol, B-5, extends A, B, C, E, and Z-2 ratings.

Oil—Amendment to M-46A defines "large operations" for priorities aid for overseas oil and gas construction.

Steel Strapping—Basic use and inventory control order M-59 revoked.

CMP Allotments—Third Quarter

General Claimants	Total Steel (Tons)	Total Copper & Base Alloys (000 lb)	Total Aluminum (000 lb)
Agriculture Department.....	47,010	1,088	40
Army Department.....	36,425	1,510	50
Atomic Energy Commission.....	106,603	6,404	5,000
Civil Aeronautics Admin.....	25,317	1,432	50
Defense Department.....	2,394,945	261,823	228,750
Defense Electric Power Administration.....	296,025	62,250	61,300
Defense Fisheries Admin.....	509	25	1
Defense Materials Proc. Agency.....	50,750	2,100	200
Defense Solid Fuels Admin.....			
Coal Mine Construction.....	13,050	355	20
Coke Oven Construction.....	26,180	410	1
Defense Transport Admin.....	90,240	2,684	100
Federal Civil Defense Admin.....	15,000	00	20
Federal Security Agency Education.....	145,060	5,420	200
Hospitals.....	75,625	3,025	170
General Services Admin.....	25,145	3,470	100
Housing & Home Finance Agency.....	95,000	3,320	100
Interior Department.....	5,718	148	20
Maritime Administration.....	128,575	2,020	100
OIT-MSA.....	951,500	10,360	2,000
Petroleum Admin, for Defense.....	1,903,750	9,050	1,500
Public Roads Bureau.....	352,000	610	200
Veterans Admin.....	8,817	1,275	50
Total.....	6,793,544	378,836	301,447

NPA Divisions

Aggr. Mach. & Impl. Div.....	549,250	8,850	9,400
Aircraft Div.....	20,240	1,780	10,200
Aluminum & Magnesium Div.....			4,300
Building Materials Div.....	903,600	57,945	65,000
Canadian Div.....	556,500	3,335	1,900
Chemical Div.....	260	991	4,700
Communications Div.....	41,775	52,720	4,000
Construction Mach. Div.....	564,025	7,785	2,300
Consumer Durable Goods Div.....	953,269	46,044	77,570
Containers & Packaging Div.....	1,540,150	400	24,000
Copper Div.....	38,600	3,700	1,300
Electrical Equip. Div.....	594,650	168,200	34,000
Electronics Div.....	63,525	31,500	12,900
Engine & Turbine Div.....	583,000	31,823	3,450
Facilities Bureau Construction Controls.....	90,070	1,970	1
Industrial Expansion.....	529,500	25,970	9,000
General Components Div.....	1,161,750	183,110	22,000
General Ind. Equip. Div.....	568,000	45,950	19,000
Iron & Steel Div.....	160,150	4,161	100
Leather & Leather Prod. Div.....	9,650	1,064	1,000
Lumber & Wood Prod. Div.....	6,008	160	1,000
Metalworking Equip.....	561,250	20,900	9,500
Mining Equip. Div.....	135,420	3,555	100
Misc. Metals & Minerals Div.....	3,540	2,450	2,900
Motion Pic-Photo Prod. Div.....	6,219	1,162	1,000
Motor Vehicle Div.....	3,294,450	120,530	65,625
Ordnance & Shipblg. Div.....	124,975	11,175	1,500
Printing & Publishing Div.....	5,520	1,160	600
Pulp, Paper & Paperboard Div.....	850	65	100
R.R. Equipment Div.....	1,773,373	85,950	4,570
Rubber Div.....	28,338	3,610	500
Scientific & Tech. Equip. Div.....	51,745	41,700	13,400
Service Equipment Div.....	40,450	2,685	3,700
Water Resources.....	230,080	2,800	200
Total.....	15,190,191	984,500	414,481

¹ Included with Industrial Expansion.

NPA Reserves (General).....	125,000	11,000	15,000
NPA Reserves (Hardship Cases).....	55,000	4,000	3,000
NPA—Field Case Account.....	810,630	28,052	15,000
DPA—Total Reserve Set Asides.....	2,434,995	105,408	51,213
Grand Totals.....	25,409,360	1,511,796	823,131
Supply.....	21,611,800	1,301,000	718,000
Pct of Supply.....	117.6	116.2	113.1



NEW BOSS: J. Douglas Darby, vice-president in charge of sales, U. S. Steel, has been appointed director of NPA's Iron & Steel Div.

Copper:

Proposed IMC quotas 20,000 tons under first period allocations.

World copper allocations recommended for the April-June quarter by International Materials Conference are more than 20,000 metric tons lower than recommended first quarter allotments, with the U. S. scheduled to get 355,600 metric tons.

Total amount on the suggested distribution list is 723,680 tons, as contrasted with 746,180 scheduled in the first quarter. Estimates of production on which first-quarter allocations were based had to be reduced as more information became available, IMC says.

Not Enough — Second-quarter estimates are higher than revised first-quarter figures, but IMC believes the expected increase in copper production in the rest of this calendar year will not be sufficient to allow for "substantially" higher recommended allocations.

Available zinc for free-world countries in the second quarter should be about 20,000 metric tons higher than in the first, the agency estimates. It recommends allocation of 510,145 tons to 38 areas. The U. S. share would be 235,800 tons.

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Photograph courtesy of
Cummins Engine Company, Inc., Columbus, Indiana

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Memphis, Tenn.
New York, N. Y.
Philadelphia, Pa.

Pittsburgh, Pa.
Rochester, N. Y.
St. Louis, Mo.
San Francisco, Calif.
Syracuse, N. Y.

Controls

(blister and refined copper and slab zinc) are included in the proposed allotments. Zinc supplies are expected to become more plentiful, and the IMC copper-lead-zinc committee will review production estimates at a later date.

The agency is not recommending a distribution plan for lead.

Rail Conservation Order Delayed

National Production Authority temporarily has pigeonholed its proposed order on rail conservation. It will be brought up again if it appears that the third and fourth quarter supply is likely to be less than 400,000 tons of steel.

However, officials are intending to amend shortly the MRO order (M-73) for rails so as to increase the dollar ceiling from \$750 to about \$2500, and to throw out inventory reports.

Representatives of the railroad industry are highly dissatisfied with the current levels of allocations for both locomotives and freight cars. They say that steel salesmen are ringing their doorbells, but NPA "is not giving the industry enough tickets."

Third-quarter allocations provide 387,000 tons of steel for rails and enough steel, copper, and aluminum for production of 800 locomotives and 24,939 freight cars.

Tornado Repair Material Released

Controls agencies moved last week to assure the availability of building materials for repairing and replacing damaged facilities in the tornado areas of the South and Southwest.

National Production Authority is making available an extra 500,000 lb of aluminum and an unstated amount of steel to fabricators for the specific purpose of assistance to the four states.

All builders are urged by NPA to make full use of the amended self-certification provisions (Dir. 2 to CMP Reg. 6) which allows acquisition of up to 25 tons of steel, 2000 lb of copper, and 1000 lb of aluminum.

More Copper for Phone Use

Controls officials last week promised the communications industry that it would increase third quarter allocations of copper from 5.5 million lb to 7.5 million lb above second quarter allotments.

The additional allotments were assured after presentation of the industry's case in which it was shown that the telephone companies are not only hard-pressed to meet defense needs but that the systems would break down under any additional overload—especially if "a general emergency" should develop.

Operating telephone companies traditionally carry margins—that is, additional central facilities and unused circuits. But postwar demands have been so heavy that the industry has never recovered from the World War II depletion of their margins.

In addition to assuring more copper allocations, control agencies will shortly revise M-77. One change will probably be an increase in self-certification provisions for small operators. The ceiling would be raised from the present \$15,000 to at least \$25,000.

Smelting Service Charge Rise OK'd

Ceiling prices on service charges can be altered, under certain conditions, by custom smelters and refiners processing copper, lead, and zinc ore and concentrates.

Authority to adjust prices for service charges to reflect added costs incurred since July 1, in accordance with contracts signed before Jan. 26, 1951, or renewed since then on the same terms, was specified in Supplementary Reg. 94, General Ceiling Price Reg. effective Apr. 1.

This action by Office of Price Stabilization was taken to provide some relief for custom smelters and refiners who have been burdened by direct wage increases retroactive to July 1.

Allowing service-charge increases will have no effect on the price of refined lead, copper, or zinc or upon the general price level, according to OPS. Ceilings for refined metals continue to be subject to the GCPR.

April 3, 1952

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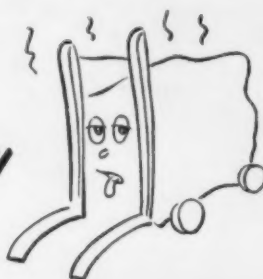
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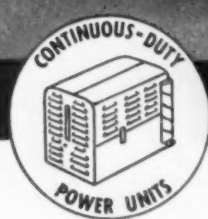
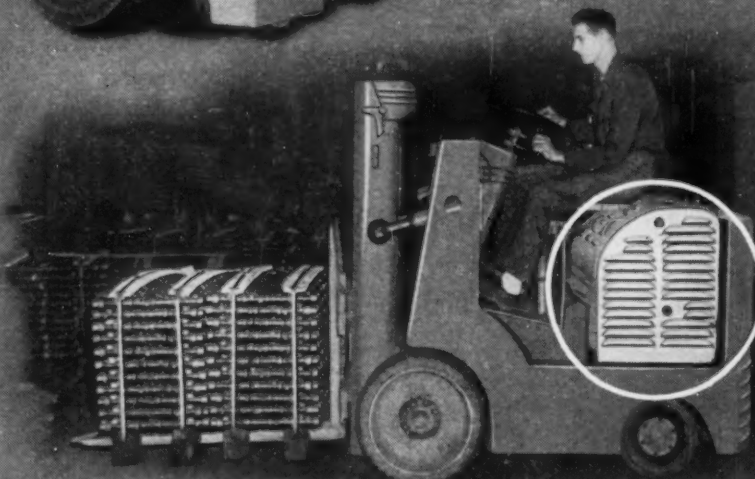
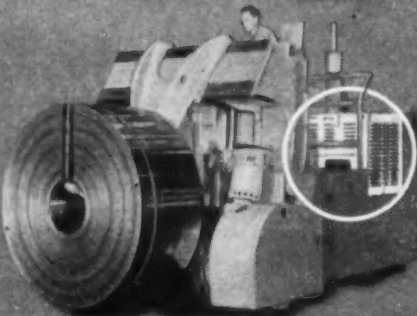
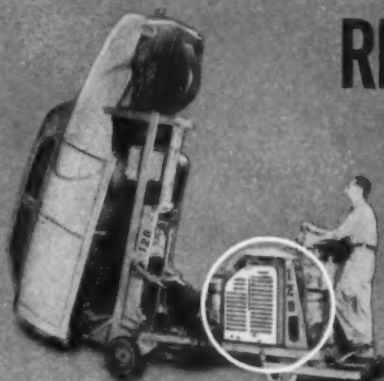
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Controls

Endanger Ferromanganese Output

Only quick action by Office of Price Stabilization can prevent actual shutdown of some ferromanganese production facilities, spokesmen for the industry have told OPS.

An industry committee has described as serious the squeeze clamped on producers by increases in delivered cost of ore since Jan. 25, 1951. Moreover, the group told pricing officials, Capehart-type adjustments or use of the earnings' standard formula would not be likely to provide adequate relief.

OPS promised "fullest possible consideration" of the industry pricing problem.

Supplies and consumption of ore are now in balance and prices of imports may be stabilized if the government does not return to stockpile purchasing, according to industry.

Carbon Electrode Quotas Retained

Allocations of carbon electrodes are to be continued for some time for fear that shortages in specific sizes, particularly those needed for electric steel furnaces, might later develop.

This is now seen as an eventuality in view of present uncertainty as to defense requirements over the next few months.

Decontrol of artificial graphite is being considered, however. On the basis of first-half improved supplies and after consultation with the industry, it has been decided that supply will soon be sufficient to meet requirements.

Steel Strapping Controls Lifted

Use and inventory controls over steel strapping as contained in M-59 have been lifted by National Production Authority through revocation of the order.

Inventories will still be subject to the overriding limitations contained in NPA Reg. 1, however.

Decontrol was dictated by the indications that there would be ample supplies for all requirements. Last year, consumption was approximately 400,000 tons.

Finance:

Defense takes big slice from Canada's new \$4.3 billion budget.

Canada's Finance Minister Abbott has asked parliament for a minimum of \$4,335,800,000 to meet running expenses of government; the largest figure ever requested in a peace year.

Of the total, \$2,106,400,000 or nearly half, is required for the armed services, defense production and civil defense. Defense production alone is estimated to require \$1.4 billion. To reach this total Canada will have to speed up production by about \$40 million a month; an increase of over 50 pct or an average monthly rate of \$117 million against the \$90 million set for the fiscal year just closed.

Lower Steel Cost Seen in Seaway

Steel prices will increase substantially in the next few years if the St. Lawrence Seaway is not built, predicted Canadian Transport Minister Lionel Chevrier last week. He said the increases would equal the entire cost of the project.

Mr. Chevrier claimed that raw materials for steel mills would soar some \$200 million per year without the seaway. If Labrador iron ore were to be made available by the project, he went on, \$30 million could be saved. He told the Economic Club of Detroit that Great Lakes mills will soon have to turn to Labrador ore because the high grade mines in the Lakes area could not keep up with expanding U. S. steel production.

Super Priorities for Britain

The British Government has introduced a new "Super-Priority" materials system, initiated by Prime Minister Churchill, to help boost vital defense production. The program will grant top priorities to aircraft, tank, guided missile, and radar equipment production. Materials required by the anti-mine program will also be included in the priority scheme.



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Old concepts of steel handling are fast giving way to this modern method. Why? Because unit loads provide flexibility that cannot be equalled by car-load-lot handling... flexibility made possible by wide-ranging ROSS STRADDLE CARRIERS. Self-loading and unloading, these machines require only an operator... no locomotive and switching crews... no riggers... no expensive, space-consuming trackage... no endless shuttling of cars. And ROSS Straddle Carriers for steel mills are built like battle ships to give dependable service in tough steel mill operating conditions. Want proof? Just ask mills which have converted to ROSS STRADDLE CARRIERS what *they* think!



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—Defense Contracts—

Government Inviting Bids

Latest proposed Federal procurements, listed by item, quantity, invitation No. or proposal, and opening date. (Invitations for Bid numbers are followed by "B," requests for proposals or quotations by "Q.")

Bureau of Ships, Washington.

Motor controllers, 110, 560-182Q, Apr. 1.

Aviation Supply Office, Philadelphia.

Motor, 1340 ea, 383/2130/373/50Q, Apr. 8.

Frankford Arsenal, Philadelphia.

Tools, small arms, var 32 itms, Ord-52-783, Apr. 4.
Spare parts for remote control system, 750 ea, Ord-52-741, Apr. 17.
Spare parts for director M9, oil gear M3, and remote control M12, var 15 itms, Ord-52-745, Apr. 17.
Spare parts for local control system telescope, var 18 itms, Ord-52-743, Apr. 17.
Spare parts for pan tel local control system, var 2 itms, Ord-52-744, Apr. 17.
Spare parts for remote control system, var 14 itms, Ord-52-745, Apr. 17.

Watervliet Arsenal, Watervliet, New York.

Steel shaft part for 90MM gun, 3400 ea, 52-135B, Apr. 18.
Steel retainer assembled for 90MM gun, 1350 ea, 52-135B, Apr. 18.

Detroit Arsenal, Centerline, Mich.

Retainer compensating idler arm bearing, 765 ea, 52-256B, Apr. 25.
Ring lock, 20293 ea, 52-256B, Apr. 25.
Spacer compensating idler, 3636 ea, 52-256B, Apr. 25.
Washer arm bearing retaining, 26100 ea, 52-256B, Apr. 25.

U. S. Atomic Energy Commission, Idaho Falls, Idaho.

Machine shop supplies & equip, 321 itms, 2241, Apr. 2.

Ordnance Tank Automotive Center, Centerline, Mich.

Chain w/cover, 16000, 52-2509B, Apr. 18.
Shaft eng heat control valve, 3400
Gear camshaft, 3000
Spring, 34000, 52-2674B, Apr. 17.
Kit repair, 1000
Kit repair, 3500

Quartermaster Depot, Chicago.

Pump centrifugal gasoline dispensing, 500 ea, 52-1168B, Apr. 18.

Navy Purchasing Office, Washington

Floater welded steel, 397, 4989-S-B, Apr. 22.
Depressor auxiliary, 328, 6006-S-B, Apr. 17.
Floater welded steel, 1050, 60-S-B, Apr. 17.
Sound reproducer, 109, 6025-S-B, Apr. 23.
Handles, socket wrench joints universal, 47285, 4029Q, Apr. 7.
Nippers end cutting pliers, 79740, 5998B, Apr. 8.
Wheels abrasive steel cup type, 25236, 6433B, Apr. 7.
Drills twist, 2232, 6435B, Apr. 8.
Hardware, 10112870, 6439B, Apr. 8.
Mark 42 mod 2 primer, 587500, 59870B, Apr. 10.
Coupling ring plate mounting and spacer assy, 33320, 59800B, Apr. 11.

Headquarters Air Materiel Command, Dayton, Ohio.

Grinder and buffer pedestal type, 150 ea, 52-6125Q, Apr. 8.
Grinder lathe tool post, 145 ea, 52-6127Q, Apr. 8.
Sander portable, 120 ea, 52-6130Q, Apr. 8.

Naval Shipyard, Portsmouth, New Hampshire.

Lanterns hand electric, 25500 ea, PR-742/52, Apr. 10.

District Corp of Engineers, Philadelphia.

Chest elec lighting equip, 396, Eng-36-109/Neg-52-257Q, Mar. 31.
Circuit breaker, 1100, Eng-36-109/Neg-52-258Q, Mar. 31.

Commandant, Marine Corps, Washington.

Machines vegetable peeling, 110 ea, 950B, Apr. 17.
Machine food mixing, 100 ea, 951B, Apr. 18.
Kettles steam jacketed, 172 ea, 961B, Apr. 18.

Signal Corps, Supply Agency, Philadelphia.
Receiver transmitter sub-assembly, 10240 ea,
10332-07Q, Apr. 23.
Cabinet, 4090 ea, 173-16B, Apr. 14.

General Services Administration, San Francisco.
Funnels, filtering, 2000 ea, SF-455, Apr. 7.
Generators, gasoline, lantern, 4464 ea.
Lanterns, gasoline, 850 ea.

Business Service Center, Region 2, General Ser-
vices Administration, New York.
Hand tools, 11060 ea, NY-3K-36714, Apr. 9.
Axe, 440 ea, NY-3K-36670, Apr. 9.

Contracts Reported Last Week

Including description, quantity,
dollar value, contractor and ad-
dress:

Gun firing controls, 3596, \$54,640, Electro-
Seal Corp., Des Plaines, Ill.
Cageable vertical gyro, 1500, \$2,540,492, Min-
neapolis Honeywell Regulator Co., Minneapolis.
Generators, 1460, \$696,740, Bendix Aviation
Corp., Teterboro, N. J.
Operating unit, dental, exceeds \$250,000, Rit-
ter Co., Inc., Rochester, N. Y.
Operating unit, dental, exceeds \$250,000, The
S. S. White Dental Mfg. Co., Brooklyn.
Operating unit, dental, 1692, exceeds \$250,-
000, The Weber Dental Mfg. Co., Canton, Ohio.
Burs, 248880, \$90,308, The S. S. White Dental
Mfg. Co., Brooklyn.
Aspirator, 2076, \$124,396, Comco Surgical
Mfg. Corp., Buffalo.
Replenishment of hardware, 5000000 ea, \$29,-
245, Republic Steel Corp., Cleveland.
Replenishment of tank & combat vehicle
parts, 200 ea, \$56,172, Duesel Art Tool & Mach.
Co., Detroit.
Replenishment of hardware, 51800 ea, \$85,276,
Bower Roller Bearing Co., Detroit.
Replenishment of hardware, 119500 ea, \$127,-
294, The Timken Roller Bearing Co., Canton.
Housing, hammer spring, 87577 ea, \$42,212,
Air Transport Equip Co., Inc., Mineola, N. Y.
Ejector, 110000 ea, \$39,600, U. S. Carburetor
Co., Calif.
Sight, rear, 120000 ea, \$29,700, Kurt Wessen
Co., Englewood, N. J.
Electrodes, 30600 lb, \$56,610, Welding Equip-
& Supply Co., Detroit.
Spare parts, var, \$43,506, International Har-
vester Co., Melrose Park, Ill.
Spare parts, var, \$244,487, Caterpillar Trac-
tor Co., Peoria, Ill.
Spare parts, var, \$480,002, Caterpillar Trac-
tor Co., Peoria, Ill.
Ring, 4000, \$134,800, West Engineering Co.,
Richmond, Va.
Coils, wire, firing conductor, rubber covered,
6998 x 500 ft ea, \$73,129, Whitney Blake Co.,
New Haven, Conn.
Spare parts, accessories & tools for fire con-
trol, 10500, \$456,933, Vickers, Inc., Detroit.
Tank-automotive spare parts, 1900, \$30,900,
Phillips Machine Co., Dearborn.
Metal parts for fuse, 1000000, \$842,817, King-
Seeley Corp., Ypsilanti, Mich.
Metal parts for shell HE, M49A2, 60MM,
856000, \$1,134,340, Motor Wheel Corp., Lansing,
Mich.
Shell, HE, M49A2, metal parts for 60MM
mortar, 856000, \$1,150,036, Hart & Cooley Mfg.
Co., Holland, Mich.
Booster, 1350000, \$1,401,300, Sargent & Co.,
New Haven, Conn.
Parts for machine guns, 145000, \$493,750,
Colt's, Hartford.
Cart, ball, 80000000, \$9,556,000, Remington
Arms Co., Inc., Bridgeport, Conn.
Primer, 3000000, \$877,464, Bridgeport Metal,
Bridgeport, Conn.
Parts for shotguns, var amts, \$48,711, Win-
chester Repeating Arms Co., New Haven, Conn.
Float, steel fitted, 450 ea, \$47,461, The Steel-
craft Mfg. Co., Rossmyrne, Ohio.
Shell, HE, 67MM, M306A1, MPTS, exceeds
\$250,000, Karl Lieberknecht, Inc., Reading, Pa.
Head, MPTS assay for rocket heat 3.5 M27A2,
exceeds \$250,000, Kennedy Van Saun Mfg. &
Eng. Co., Danville, Pa.
Automatic washer, case cartridge, exceeds
\$250,000, Automatic Washer Co., Newtown,
Iowa.
Tube howitzer, 105MM, \$167,268, Chain Belt
Co., Milwaukee.
Primer, 4171 un., \$191,553, Harper Wyman
Co., Chicago, Ill.
Primer, 3530, \$171,205, Langson Mfg. Co.,
Chicago.
Swivel butt rifle, 104000, \$43,539, Andi Clip-
per Co., Racine, Wis.
Shell, HE, 155MM, M107, exceeds \$250,000,
Deere Mfg. Co., Moline, Ill.
Tail assay for 81 MM, exceeds \$250,000, Madi-
son Kipp Corp., Madison, Wis.



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Nickel-Iron-Alkaline Storage Batteries
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convenient intervals for multiple-shift
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people think they are higher priced
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comparing this factor with their well-
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the unit-load method of handling, the
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Test Temperature.....1200°F.
Tensile Strength.....38,200 psi.
Elongation (2").....29.5%
Reduction in Area.....86.1%

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Metal destined for a high alloy
casting which has to meet
some pretty rigid specifications!**

The story we want to tell here is about our Testing Facilities. We have right in our foundry every conceivable testing facility needed when checking static or centrifugal high alloy castings for industry. Where required, we make complete chemical, metallurgical, and mechanical checks and tests. And have both a 400,000 volt X-ray unit and gamma-ray unit, for checking the final casting for hidden flaws.

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Construction

Steel Inquiries and Awards

Fabricated steel awards this week include the following:

- 1260 Tons, for Kankakee Co. Bridge, Sec. 140F to Bethlehem Steel.
- 235 Tons, for Halstead Street Substructure, Chicago, to American Bridge Co.
- 170 Tons, State of Illinois Bridge Project 110X-6VF, to Wendnagle Co.
- 152 Tons, Raynham, Bridgewater and West Bridgewater, Mass., bituminous concrete pavement one two-span steel stringer bridge and two single-span reinforced concrete bridges, low bidder.
- 150 Tons, for Transmission towers, Illinois Gas & Electric Co., Davenport, Ia., to American Bridge Co.

Fabricated steel inquiries this week include the following:

- 757 Tons, Lehigh County, Pa., divided highway, deck plate girder bridge, 1 reinforced concrete structure, grading, 1 plate girder, 3 I-beam bridges, pavements, ramps, roads. Pa. Department of Highways, Harrisburg, Pa. Bids to April 25, 1952.
- 300 Tons, Bridge, Fremont Co., Project F235.
- 160 Tons, Bridge Project 6-600, St. Paul.
- 135 Tons, Bridge, project SN-2083, Jackson Co., Ia.

Reinforcing bar awards this week include the following:

- 1100 Tons, sewer project, Chicago, Ill., awarded to San Tucci Construction Co.
- 141 Tons, Raynham, Bridgewater and West Bridgewater, three bridges, J. F. Fitzgerald Construction Co., Boston, low bidder.

Reinforcing bar inquiries this week include the following:

- 1630 Tons, low rent housing project 2-17, Chicago.
- 267 Tons, Lehigh County, Pa., divided highway, deck plate girder bridge, 1 reinforced concrete structure, grading, 1 plate girder, 3 I-beam bridges, pavements, ramps, roads. Pa. Department of Highways, Harrisburg, Pa. Bids to April 25, 1952.

February bookings of fabricated structural steel, according to reports compiled by the American Institute of Steel Construction, totaled 202,810 tons, slightly less than the 215,031 tons contracted for in January. The two months total of 417,841 tons is 32% less than the 618,119 tons booked in the corresponding period of 1951, reflecting the effects of the drastic allocations imposed upon the construction industry.

Shipments for February amounted to 248,443 tons, a slight increase over the January figure, and at a somewhat improved rate over the 1951 monthly average.

The backlog of the industry (bookings scheduled for work ahead) at February 29 totaled 2,408,032 tons, a drop of some 8,000 tons from the preceding month.

A tabulation showing the detailed figures for the two months is given below:

Estimated Total Tonnage for the entire industry			
CONTRACTS CLOSED	1952	1951	Avg. 1947-1950
Total Tonnage			
January	215,031*	361,373	161,976
February	202,810	256,746	152,186
Totals	417,841	618,119	314,162
SHIPMENTS			
January	242,723*	214,000	166,910
February	248,443	193,638	161,170
Totals	491,166	407,638	328,080

TONNAGE OF BACKLOG 2,408,032 2,589,672 1,212,333
Percentage scheduled for production within the next four months (To June 30) 47% 44% 58%
Percentage scheduled for production after the next four months (From July 1) 53% 56% 42%
*Revised

No Zest for Non-Defense Tool Output

NPA sees no early amending of machine tool priorities . . . Auto builders want new machines for redesigned civilian vehicles . . . Defense deliveries still lag behind—By G. H. Baker.

In spite of all rumors to the contrary, there actually is little or no possibility that the government will soon amend its machine tool priority order to permit construction of tools for non-defense use.

National Production Authority officials report they've had "quite a few inquiries" concerning the possibility that non-defense buyers of machine tools (manufacturers of civilian-type automobiles, for example) soon will be able to order the tools necessary for basic re-designing of civilian vehicles.

Taking Up Slack—Unfortunately, the government's guns-and-butter war economy isn't that far along yet. Machine tool deliveries to holders of defense contracts still lag far behind, although the passing of each week sees a little more slack removed from the program. Some toolmakers, with less than the industry average order backlog, want the right to make civilian machines when the time is ripe.

Actually, the NPA order (M-41A) which controls use of machine tools has no expiration date, and none is currently under consideration, it is reported. This is the case with all the NPA "M" orders.

Subcontract Specialty Work—Small contractors should find it easier to participate in government construction contracts, if a proposal (S. 2907) now under consideration in the Senate becomes law.

Spread-the-work plan would require general contractors who hold cost-plus government contracts to subcontract specialty work if the prime contractor has

no historical experience in the specialty field.

Contractors in the plumbing, heating, and electrical fields should derive a special benefit from the plan, according to the sponsors (Senators Kilgore, D., W. Va.; Sparkman, D., Ala., and Ferguson, R., Mich.)

Helping Out?—Defense Dept. brass hats swear they are doing "everything possible" to get more defense contracts into Detroit and other unemployment areas.

Munitions Board is now instructing Army, Navy, and Air Force procurement officers in the field to grant preference to firms located in unemployment areas when handling negotiated contracts valued at \$25,000 or more. That's on defense work.

Hands Tied—However, General Services Administration—buyer

for nearly all non-military products the government needs—says it is experiencing considerable difficulty in administering the new policy of diverting government business to labor-surplus areas.

How, asks GSA, can we award a contract to a firm which is not the low bidder, when Congress has specifically directed us to adhere to a low-bid policy of procurement?

Bureau Needs "Brain"—Purchase by the government of a \$100,000 "electronic brain" would enable federal research bureaus to stop duplicating studies already completed or under way at the laboratories of private industry, a Commerce Dept. official predicts.

John C. Green, technical information director, estimates that Washington wastes more than \$20 million annually by unknowingly engaging in the same research projects as business and industry.

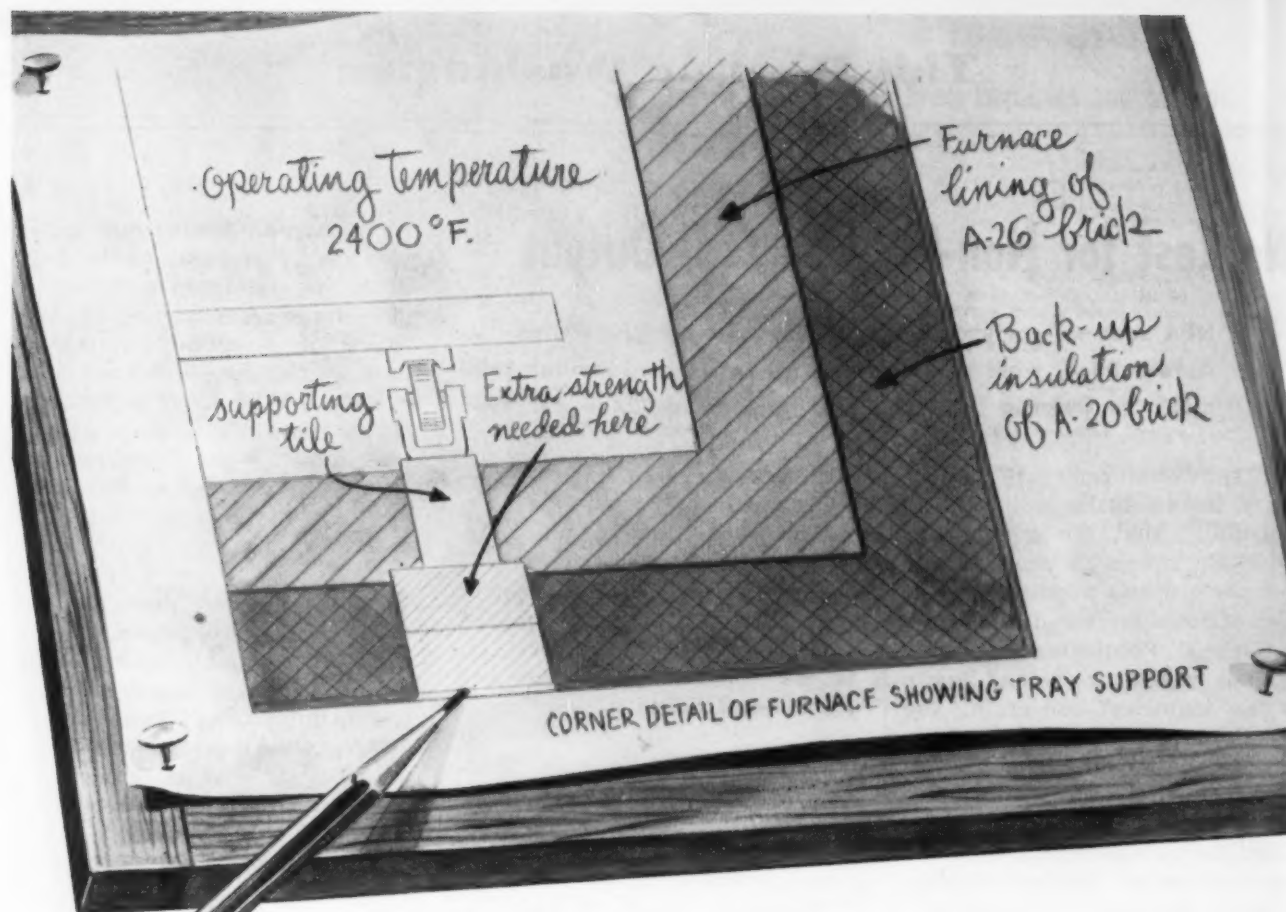
Construction of a custom-built electronic calculator would permit government scientists to find out what has been done in any given field simply by feeding the questions to the machine and punching buttons to obtain the answers.

Plan's Official—Aid in screening those military contracts which can be handled by small business will be provided by representatives of Small Defense Plants Administration, who are going on duty in approximately 80 field procurement offices of the military departments.

Assignment of these small business specialists has been expected since early February, when SDPA described a plan for placing men in the procurement offices to promote more small-company participation in defense buying programs.

Actual announcement of the new policy was made by Munitions Board Chairman John D. Small, in the form of an official directive. The directive also covers placement of negotiated contracts.





Which brick would you use here?

The selection of insulating fire brick sometimes goes beyond choosing the brick best suited for furnace lining and back-up insulation. The sketch above is a case in point.

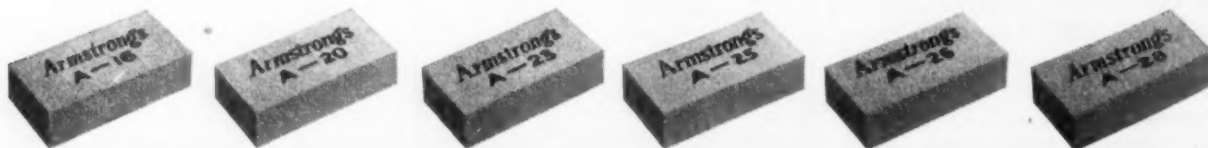
The problem here was to build maximum insulating efficiency into the design and also provide adequate support for the pier carrying the weight of the charge. In this furnace, the tray slides in and out of the firing chamber on wheels anchored to a fire brick pier in the hearth. When loaded, it can exert up to 200 lbs per sq. in. on the supporting column.

The wheels carrying the tray, and the bearing pads underneath them, rest on heavy-duty refractory brick set into the furnace lining. But instead of continuing the fire brick through the hearth, extra efficiency was built into the furnace by using insulating brick as both support and insulation. As the furnace proper was lined with Armstrong's A-26 Insulating Fire Brick, backed up with A-20's, it

was logical to use one of these two types under the pier. The question was, which one? Because of the weight of the charge, A-26's were the correct choice. Although their insulating efficiency is not quite so high as A-20's, their compressive strength (325 lbs. per sq. in.) provided a good margin of safety.

Armstrong offers you a complete selection of insulating refractories made to meet all requirements of furnace design. Each of the six brick types is carefully formulated to give you the best balance of mechanical strength and low thermal conductivity.

Next time you have a furnace job, first check your specifications with an Armstrong engineer. His thorough knowledge of furnace design and brick performance can help you build a better furnace. Just contact your nearby Armstrong office or write direct to Armstrong Cork Company, 4904 Mulberry Street, Lancaster, Pennsylvania.



ARMSTRONG'S INSULATING REFRACTORIES

POWER: More Facilities Needed

Washington plans financial, quota aid to industry for 3-year expansion program . . . DPA feels present 101 million-kw goal too small, wants 6 million kw more by end of 1954.

Tax-amortization certificates and other government aids are to be extended with a generous hand over the next 3 years in a joint industry-government effort to juice up the present power expansion program to new peaks.

Official verdict is that the 101 million kw total capacity now planned is entirely too small if the requirements of new aluminum production and other expanding industries are to be met.

Generating capacity at the end of 1951 was estimated at 75 million kw, with a production of 370 billion kwhr. Through Feb. 15 of this year, tax writeoffs had been approved for an additional 8 million kw capacity.

Wants More—In the meantime, a committee appointed last autumn by Defense Production Administration has turned in its report. Last week, DPA came to the conclusion that another 6 million kw in new capacity must be added to the present target. Total by end of 1954: 107 million kw.

This means that new facilities must go into place at a rate of 9 million kw during 1952, stepped up to 11 million for 1953, and go to 12 million for 1954—for a total of 32 million kw for the 3 years.

This recommended total is 2 million kw more than suggested by the committee, and 5 million more than Defense Electric Power Administration was shooting for. Three days later, DEPA scrapped its own target and adopted the higher goal recommended by DPA.

Its recommendation, DPA said, "provides the basis for governmental assistance to achieve the needed expansion."

Faster Writeoffs—This assistance was generally expected to follow the current pattern. Over-

riding the general procedure would be stepped up processing of tax amortization applications. As of Feb. 18, some 334 applications, involving some \$1,150,000,000 worth of construction, were pending.

Other assistance would lie with increased pressure for allotment of bigger quantities of materials, as well as rendering spot assistance in getting delivery of equipment and "B" products for components and parts.

Principal bottlenecks are in production of heavy steam turbines, high voltage switchgear and transformers, copper wire, and heavy castings.

How Much—Part to be played by public power development in the new expansion goals is not yet clear. It will depend largely on the attitude and action of Congress. But few outs in planning are seen. Principal question to be settled by federal planners is one involving size and extent of expansion.

Presently under construction, or planned for starting, are some 20 federal projects. These will add an estimated 5.7 million kw to existing capacity by 1958.

About 1.6 million kw capacity is to come into production by the end of 1954. Another 1.5 million kw would start producing during 1955. The remainder is scheduled for completion not later than fall of 1958.

"Distress Areas" to Get Relief

Office of Defense Mobilization has ordered the diversion of defense contracts into the Terre Haute, Ind., area. Mounting unemployment made the area eligible for relief under ODM's policy of placing defense contracts in labor-surplus areas.

ODM is considering a request from the Labor Dept. that ten other areas be ruled "distress areas." These are Bay City, Mich.; Muncie, Ind.; Reading, Pa.; Utica-Rome, N. Y.; Danielson, Conn.; Nashua, N. H.; Port Huron, Mich.; White Sulphur Springs, W. Va.; Jasper, Ala., and Gloversville, N. Y.

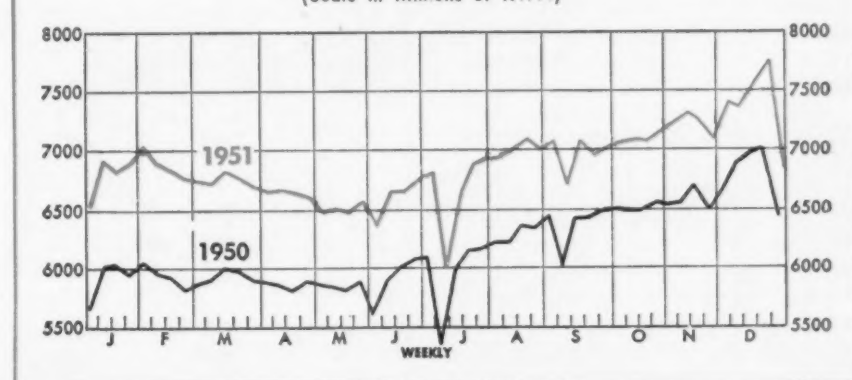
Seek Capital to Develop Yukon

Registration with the Securities & Exchange Commission is sought by Jersey Yukon Mines, Ltd., of Toronto, for sale of 200,000 common shares of stock. Par value is \$1, and the stock will be offered at \$1 (Canadian) per share.

Capital is sought to help explore and develop Yukon properties which the company believes will produce silver, lead, and zinc.

Electric Power Output

(Scale in Millions of KWH)



Industrial Briefs

Educational Program — GENERAL ELECTRIC CO. will offer more than \$370,000 in scholarships, fellowships and grants for the 1952-53 school year, under an expanded and revised educational assistance program. Total amount of the awards will be approximately 60 pct greater than that of the current program, and the number of awards will be increased from 138 to 285.

New Quarters — The entire plant, offices and personnel of ARCOLA FOUNDRY, INC., Arcola, Ill., is moving to new quarters at Salem, Ill. New equipment will be installed to reach a capacity of 30 to 35 tons per day. The plant will produce small, medium and heavy castings from matchplates, cope, and drag and loose patterns.

Opens Branch — UDDEHOLM CO. OF AMERICA, New York, has opened a new branch office and warehouse at 5037 Anaheim-Telegraph Rd., Los Angeles, to distribute their tool and die steels as well as cold-rolled strip specialties. Mr. Erik V. Enevik will be resident manager while retaining his position as first vice-president. The company recently opened a warehouse at 3756 Carnegie Ave., Cleveland.

Closes Purchase — AMERICAN MACHINE & FOUNDRY CO., New York, has completed the purchase of a majority of the stock of the Thompson-Bremmer Co., Chicago, manufacturer of industrial fasteners and electrical terminals. The Chicago firm will operate as part of the General Products Div.

New Name — The corporate name of Sheldon, Morse, Hutchins & Easton, Inc., has been changed to OPINION BUILDERS, INC. Robert Nathans has been elected president of the company which is located at 420 Lexington Ave., New York.

Chicago Office — MCLOUTH STEEL CORP. has opened a Chicago sales office in the Continental Co.'s Building, 310 S. Michigan Blvd., Chicago.

Cut Nail Centennial — LaBelle Works, WHEELING STEEL CORP., one of the largest cut nail plants in the U. S., celebrates its 100th anniversary this month.

Management Course — COLLEGE OF ENGINEERING, State University of Iowa, will hold its thirteenth Summer Management Course, June 9-21, in Iowa City. The course is held for factory managers, foremen, industrial engineers, methods and time study analysis, cost accountants and office executives. The regular university teaching staff will be augmented by outstanding men from a variety of industries and educational institutions. Communications concerning the course should be sent to Wayne Deegan, 113 Engineering Building, State University of Iowa, Iowa City, Iowa.

Addition — Butterfield Div., UNION TWIST DRILL CO., Derby Line, Vt., has added a complete line of high speed and carbon twist drills to the present line of taps, dies and reamers.

Cyanamid Subsidiary — AMERICAN CYANAMID CO., New York, has recently formed a new corporation, Chemical Construction (Inter-American) Ltd., a cyanamid subsidiary, with main offices in Toronto. The new subsidiary will design and build chemical plants in all nations of the Western Hemisphere except the U. S. Its operations will parallel those of another Cyanamid unit, Chemical Construction Corp., which designs and builds chemical plants in the U. S. and throughout the world.



Mechanical Trimmers — At its Baltimore Locust Point Terminal, B & O RAILROAD has installed mechanical trimmers that will increase the speed of grain loading from 3000 to 11,000 bushels per hr. Use of these will make it possible to do away with the tedious hand-shoveling method of trimming the load.

Name Changes — Round Chain Co. has changed the name of Seattle Chain & Mfg. Co. to ROUND SEATTLE CHAIN CORP. The company is located at 6921 E. Marginal Way, with branches in Portland, Ore., and Bellingham, Wash.

Expands Facilities — ACE HEAT TREATING CO., Elizabeth N. J., has expanded its facilities to include vapor blasting and liquid honing, sand blasting and barrel finishing for tumbling, deburring and microfinish polishing. Ace claims that with its new machinery and newly developed methods, it can produce surface finishes as fine as 2 micro in. Thus precise polishing, as well as deburring, becomes possible on many types of production parts, delicate precision parts and threaded parts which would ordinarily have been subject to slow, tedious and expensive hand operations.

Nears Completion — An additional manufacturing unit, which will increase production of silica brick by an estimated 50 pct, is nearing completion at the Fairfield, Ala. plant of HARBISON-WALKER REFRACTORIES CO. The added unit is equipped to handle complete manufacture of the refractories used basically in building openhearth steel furnaces, byproduct coke ovens, and miscellaneous furnaces in the iron and steel industry and other industries. The Rust Engineering Co. contract involved the production plant with the exception of kilns and driers.

Crucible Furnaces — MORRISON INDUSTRIES, Bedford, Ohio, are now manufacturing and can furnish the complete line of Markley Top-Fried Standard Size Crucible Furnaces for No. 50 to 400, available in single or twin furnace units. The Markley Furnace is also built in single top-fried units for large crucibles, which show extreme operating economies.

Reduce the use of critical alloys in gas turbine structures

N-A-X AC9115 ALLOY STEEL offers a means of reducing the use of critical alloy steels of the "stainless" type in gas turbine and similar applications. In specific cases it has replaced over half the amount of strategic material originally required, with no sacrifice of quality.

N-A-X AC9115 ALLOY STEEL has high strength and toughness values at temperatures ranging from -70° F. to $+1,000^{\circ}$ F. It can be readily cold formed into the most difficult shapes; its response to welding by any process is excellent. It must, however, be suitably coated for protection against cold or hot corrosion.

N-A-X AC9115 ALLOY STEEL is available in bars as well as flat rolled products. Investigate the outstanding properties and characteristics of this steel and, through its use, conserve the critical material so necessary to our nation.



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NATIONAL STEEL



CORPORATION

The Automotive Assembly Line

Auto Salesmen Dream of Spring

Dealers hope traditional warm weather business spurt will dispel their gloom . . . Sales, not materials, may determine second half production . . . Stocks low—By R. D. Raddant.

No one yearns for spring more than the automobile salesman whose thoughts of warm weather and the resulting sales boom keep him going through the bleak winter months when the market is as cold as the weather.

This was never more true than this year when auto sales staffs are holding their breath waiting for the first sunny days.

They wonder if, when the warm weather does come, it will bring the same boom in sales that it has in other years and dispel the feeling of sales gloom.

Last week allowable quotas for the third and fourth quarters were raised to 1,150,000 vehicles with the elimination of all output ceilings being considered.

Sales Not Materials—Unless the sales picture changes, this may be all the auto companies will want to make this year. There is evidence that in the second half of the year

sales rather than available materials may be the controlling factor in production, barring a steel strike. (See p. 81)

There is both an optimistic and a pessimistic side to the sales picture. For one thing, salesmen always have long faces shortly before the spring sales boom but a few good days can change the entire picture.

But until spring weather does set in, there is no real yardstick to measure automobile demand.

Despite the rather unsatisfactory market in the first months of the year, the enforced low production caused by cutbacks did not keep up with sales. The result is that stocks are at the lowest point since 1946 at a time when they are usually at a high in readiness for the anticipated sales brought on by good driving weather.

Honeymoon Is Over—A sustained period of brisk sales could very

easily exhaust inventories and force waiting periods for purchasers. This would put a hasty end to the pessimistic talk.

But there is a general feeling that the honeymoon for salesmen may be over and they may have to return to prewar sales tactics. This is evident in the attitudes of old dealers contrasted to owners of new dealerships.

The old dealers are not worried as much as are the newcomers to the business who have never really sold cars in a competitive market. Most of the demand for a relaxing of credit controls comes from the new men who are the principal complainants against Reg. W.

White Walls—Two minor factors that will help a little in the sales picture are the lifting of government restrictions on automatic transmissions and white wall tires, both attractive items to lure the customers.

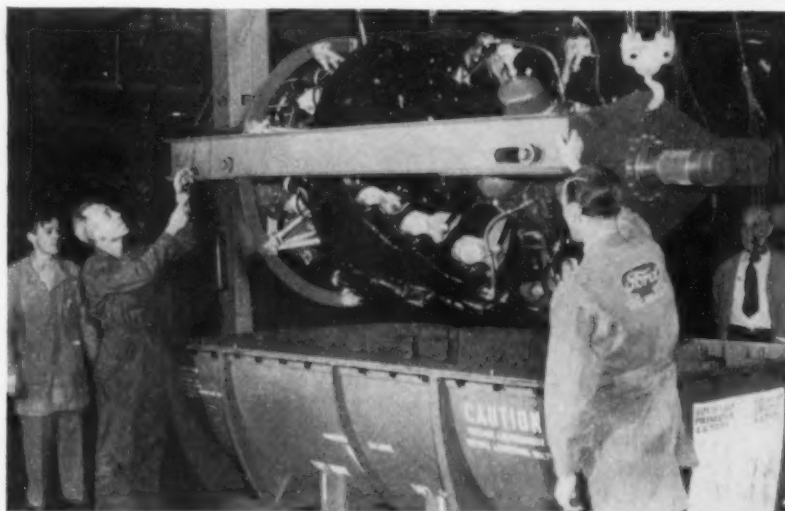
Meanwhile, there is some price discounting being done in the auto market to stimulate sales. This is being done chiefly on cars which did not change stylings in 1952 while the new models move rapidly enough at list price. Of cars which did not change styling this year, only Chevrolet and Cadillac are not being now discounted.

The theory that a buyer's market may develop is strengthened by the sales pep talks that have been made recently. Agencies and dealerships have been told to get out there and sell, follow up old sales, and get ready for a competitive market.

All-American—Packard's Pan American, unveiled at the International Motor Sports Show in New York, is the latest of the super-sleek, ultra-modern sports cars that are being shown this year by the automobile companies.

Taking a sly dig at other companies looking to Europe for their slick designs, Packard stresses the

Turn Page



IN PRODUCTION: Employees at Ford Aircraft Engine Div., Chicago, lower a 3900-lb Wasp Major engine into a metal shipping container. The plant recently completed 18 months of preparation by producing its first engine on schedule.

all-American aspects of the car's design and construction.

The Pan American was designed by Richard Arbib, consultant to the Henney Motor Co., Freeport, Ill. It has a wide body to carry three passengers in the front seat. It is only 3 ft in height to the top of the door and only 53 in. with the top up.

Contours—The design of the Pan American minimized chrome features to emphasize "sculptural contours" of the body with chrome used only to accent basic form and structure, not as ornamentation, its designers say.

It is powered by the Packard 327 "Thunderbolt" engine with increased carburetion and revised cylinder head to give 175 hp.

External eye-catching features are the air-scoop up on the hood, triple "stack" on the exhaust tube at the rear, chrome plated wire wheels and a rear-mounted spare tire.

Competition between foreign and American designers for these special "manufacturer's hot rods" may be just beginning. Another major company is rumored ready to unveil a European design as soon as it is unloaded from the boat.

Controls Hurt Hudson's Record

Despite sales totalling \$186,050,832 during 1951, the Hudson Motor Car Co. reported a loss of \$1,125,210 in the past year's operations.

A. E. Barit, president and general manager, said that a shortage of sheet steel at mill prices, delays in obtaining price increases to cover rising costs, and intermittent strikes caused the operating loss.

However, he reported that "the change for the better in the steel market situation promises considerable improvement for our company in 1952" and that it is now operating again on a profitable basis.

Barit said that shipments are expected to start during the summer on the light car which Hudson announced it intended to build.

Manufacturing:

Machines do almost all work at Ford's Cleveland engine plant.

Probably the nearest approach to a "fully-automated" plant in the automobile industry is Ford Motor Co.'s engine plant in Cleveland.

The plant, now producing the Ford 6-cylinder, overhead-valve engine, has gone a long way toward eliminating heavy labor which is now assigned to machines rather than manpower.

Mechanical arms and hands are directed by electric nerve centers to pick up, turn over and shift from one automatic cutting machine to another such large pieces as 180-lb engine blocks.

Nerve Centers—Forty of these nerve centers operate the automated lines that finish engine blocks and heads and eight more are to be added. Electronic drilling machines contribute their part to the automation.

When the plant is in full operation it will also turn out Mercury

8-cylinder engines, producing a total of 4500 engines daily. A new foundry, said to be the nation's most modern, will be completed adjacent to the engine plant in April. This will complete the Cleveland operation of building engines "from the ground up."

Incidentally, the word "automation" was coined several years ago by Del S. Harder, vice-president-manufacturing, when he described the factory of the future. It is now generally used to describe the automatic handling of materials being processed between machine operations.

Customers Like Their Cars Red

Likes and dislikes of the unpredictable auto buying public never cease to astound auto salesmen in spite of their reputations for being ahead of the game.

Contrary to all predictions and rules of reason, Buick finds that the new Apache red color, a bright red usually associated with fire engines, is outselling all other colors on convertibles and 2-door Rivieras.

THE BULL OF THE WOODS

By J. R. Williams





POUR FASTER...

STRIP FASTER.

**AND ADD LIFE TO
CRITICAL MATERIALS
with **NATIONAL**
TRADE-MARK
Graphite Stool Inserts!**

Mold stools with graphite inserts stand up to the hot-metal impact of fast, uniform pouring... absolutely *eliminate* the bottleneck of stool-sticker slow-ups. Ingot cars move evenly... you get greater man-hour productivity and, incidentally, much longer life from essential materials and equipment.

Write to National Carbon Company for information.

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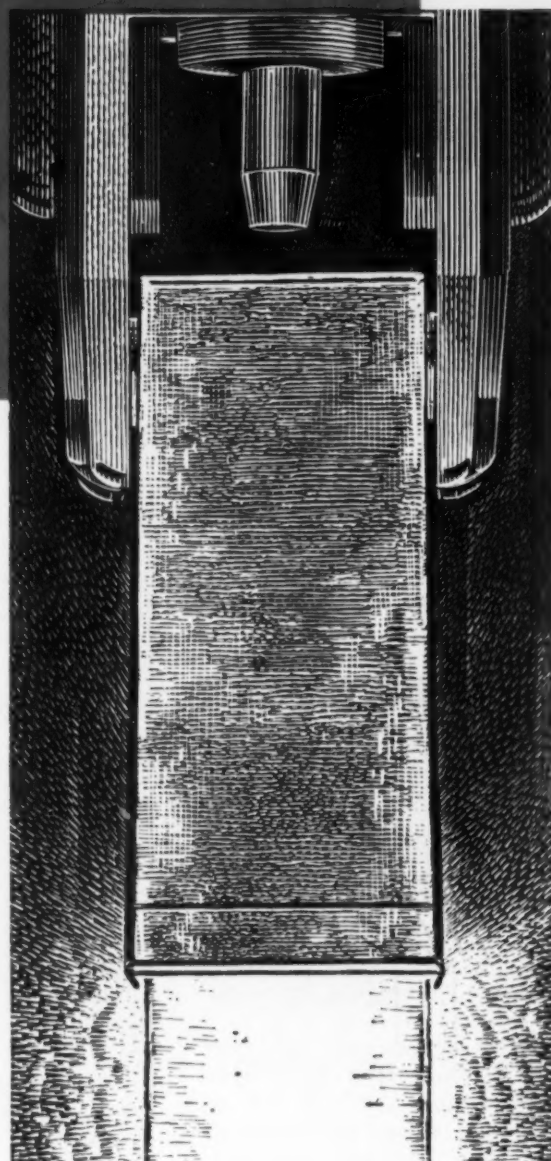
NATIONAL CARBON COMPANY

A Division of Union Carbide and Carbon Corporation

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West Coast Report

Mills Out of the Woods on Scrap

Steelmakers' supplies ease . . . Many have inventories of 60 days . . . Bundles almost as soft as cast . . . Heavy melting is still at a premium, but inventories are now in balance.

It's hard to believe—and there will be some denials—but western steelmakers are temporarily out of the woods on scrap.

Inventories of 60 days are not uncommon and bundles are becoming almost as easy to buy as cast iron scrap which currently is a drug on the market. Barring a steel strike there are many who believe the market will firm up within a few weeks, but it is generally agreed by dealers and brokers that the crisis has been passed.

Industry cooperation with the scrap drive and the auto wrecking program have both contributed more tonnage than anyone had dared hope. Abundance of bales can in large part be credited to the latter. No. 1 and No. 2 heavy melting are not running out of anyone's ears right now, but there is enough of both to keep inventories in balance. Imports of scrap from Alaska have helped some. About 31,000 tons of good scrap was reported in that territory and part of it has already been shipped into Seattle.

Furnace Slowdown—Typical of industry's contribution to the scrap drive is that of Boeing Airplane Co. in Seattle which last year salvaged almost 4000 tons of metal which was an increase of 1000 tons over 1950. Of this total about 2000 tons were ferrous metals.

Contributing to the easing of the scrap situation is a slowdown in operations of furnaces which have been producing ingots for the government or conversion. Other smaller steelmakers with rolling facilities have also shut down some of their furnaces. How-

ever, these are minor factors in the overall picture. Western ingot production continues at or above 100 pct of capacity.

In spite of the current bright scrap picture there is no easing up in the drive by steelmakers.

Extrusions for Northwest?—In announcing a \$1,217,500 expansion program at its Vancouver, Wash., plant, Aluminum Co. of America officials indicated that it was a forerunner of a projected extrusion and wire working plant.

Present investment is for equipment for modernization to increase aluminum ingot production.

Although about 44 pct of the nation's primary aluminum production is in the Northwest only finished products made by the producers are sheets and steel-reinforced aluminum cable. Boeing and other users of aluminum extrusions have had to rely on California and Arizona sources.

Getting Closer—Construction of Alcoa's reduction plant at Wenatchee has progressed to the point where hiring the first of 900 per-

manent workers is expected to be started in May. By June there will be about 200 men and the rest will be on the payroll by December.

As aluminum production rapidly increases there are small local signs of better supply. One Los Angeles jobber is reported as going as far afield as Seattle for customers for some 125 tons of aluminum.

Generally, however, shortages still plague fabricators. Recently Telford Taylor of the Small Defense Plants Administration stated in San Francisco that there are 360 firms in the three Pacific Coast states with aluminum or copper allocations of 20 pct or less of their pre-Korea requirements, 84 pct of which are in California. Another 59 companies, of which 52 are in California, have allocations of 21 to 34 pct of their base period.

Stretch-out Doesn't Show—Extensions in production schedules haven't affected Boeing Airplane Co.'s search for manpower. The company is launching a campaign for another 1100 production workers to be hired by June ranging in skills from helper to top-grade mechanics. Present payroll in the Seattle and Renton, Wash., plants is 28,218 and the additional hires will make the total close to 29,000.

Last week Boeing reported a backlog of unfilled business totalling \$1,355,520,000 compared to about an even billion dollars at the end of 1950.

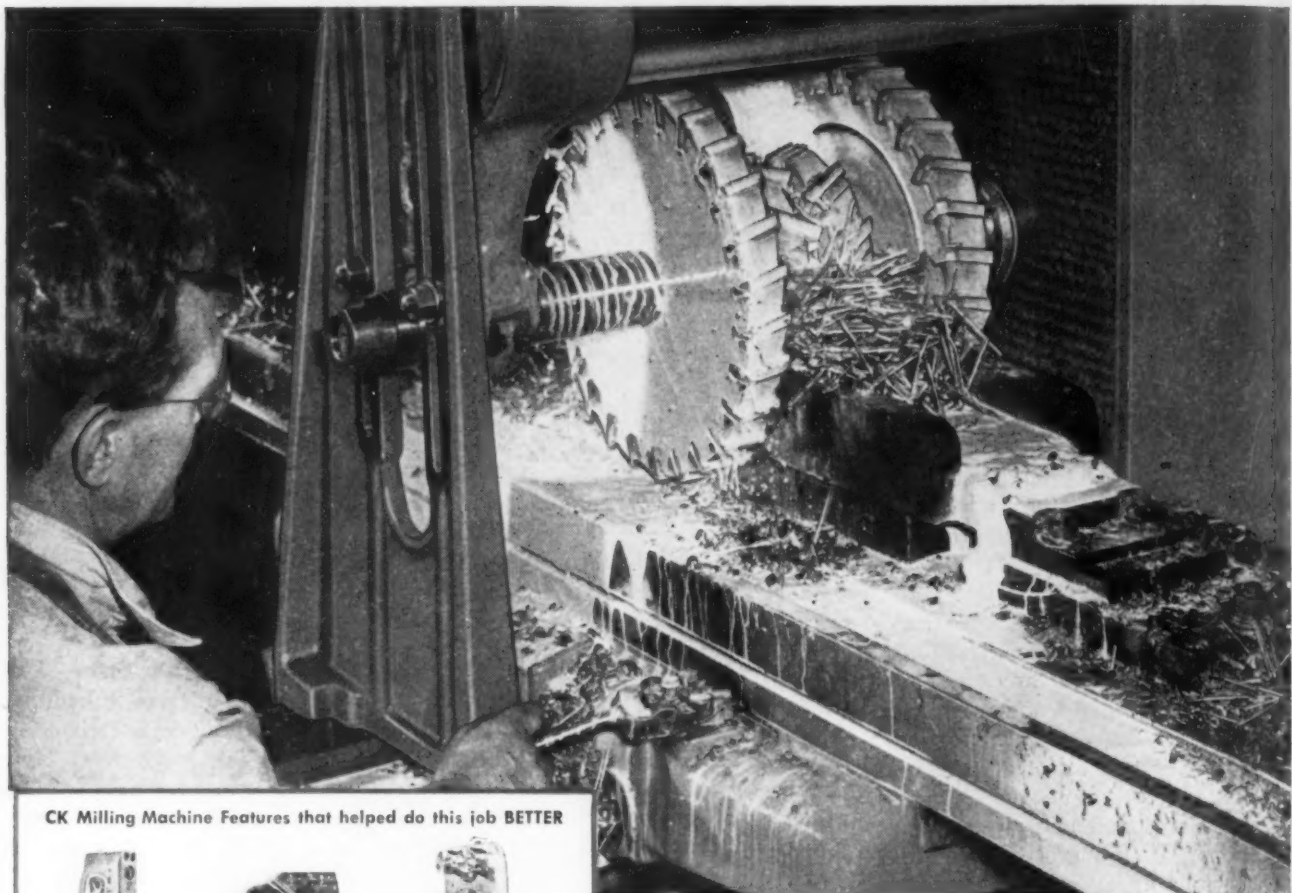
Big "Small" Business—National Steel and Shipbuilding Co. of San Diego, recently awarded a \$10 million contract for construction of 41 all-steel small craft for the Navy, now has a backlog of orders totalling well over \$20 million.

From a small machine shop started in 1899 the company has grown to be one of the largest and most diversified metal fabricating plants in the Southwest, employing nearly 1000 men.



FACTS TELL THE STORY...

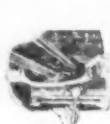
NEW CK MILLING MACHINE PAYS USER BIG PRODUCTION DIVIDEND



CK Milling Machine Features that helped do this job BETTER



New CK column easily absorbed vibration from heavy cutting load.



CK's large (2" dia.) screw and extra-long table feed nut permitted heavy cut.



No. 60 heavy-duty drive flange on spindle drives heavy-duty arbor with multiple cutters.



CK's positive, metered, pressure and automatic lubrication assured wear-free operation.



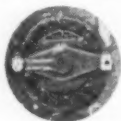
Greater Horsepower of CK machine meant maximum results from modern cutting tools.



CK's 3-bearing spindle and fly-wheel assured fastest metal removal with desired finish.



24 different spindle speeds (13 to 1300 rpm) plus 32 different table feeds (1/8" to 90 ipm) meant operator selected exact combination to get fullest advantage from high horsepower and modern cutting tools.



The FACTS on this job are:

Machine: New 25hp No. 5, Model CK Plain.

Material: Cast Steel, 150 Brinell.

Feed: 4 1/2 inches per minute.

Cutter Speed: 100 Surface feet per minute.

Rate of metal removal: 17.5 cu. in. per min.

Production rate: 4 parts per hour.

NOTE: Each part requires but a *single pass* of the cutter on the new Kearney & Trecker CK machine.

Old production rate 1 1/2 parts per hour with two passes required per piece.

Investigate Kearney & Trecker's new CK line of milling machines. You'll find every feature is test and job-proven to give you cost-cutting results... greater machine capacity... greater productivity... better finished products. Contact your nearest Kearney & Trecker representative or write: Kearney & Trecker Corp., 6784 West National Avenue, Milwaukee 14, Wisconsin.



Machine Tool High Spots

Industry Seeks Peacetime Strength

DPA commission to ponder problem . . . Bullard speech may give clues to NMTBA policy . . . Considers standby priority plan, break on taxes, sane stockpiling—By G. Elwers.

The commission on machine tools being set up by Office of Defense Mobilization will consider how to keep the machine tool industry strong in peacetime.

The industry itself has been actively considering that and related problems for some time. The National Machine Tool Builders' Assn. has had a committee on permanent defense capacity operating since last Fall. Its creation was one of the first official acts of the current NMTBA president, F. S. Blackall, Jr.

Clue to Beliefs—Some indication of the lines along which this group is probably thinking was given Monday in Buffalo by Mr. Blackall.

In a speech at the Westinghouse Machine Tool Electrification Forum, Mr. Blackall offered these suggestions for keeping U. S. machine tool potential high:

First, not only the NPA, but Congress, the military services, and Administrative agencies including the Treasury Dept. and the Renegotiation Board, must learn to understand the industry and its problems. This understanding and recognition must be permanent, not something which has to be rediscovered, too late, every time there is a defense emergency.

Standby Priorities—Second, a priority plan should be set up on a standby basis, ready to be invoked by executive order on a moment's notice in event of emergency.

This plan should provide for money, men, materials, and manufacturing needed to increase machine tool production to defense period levels.

Lower Taxes—Third, there must be greater recognition in tax policies of the special problems and needs of highly cyclical industries like machine tools. Taxing away the high profits made during temporary defense booms leaves the industry ill-equipped to face lean years between booms. And lean years have hit before.

Tax policies should also be revised to liberalize depreciation allowances at all times, not just during defense periods.

Stockpiling—Speaking of stockpiling machine tools as a defense measure, Mr. Blackall said the reserve would be ineffective and even economically dangerous unless two important considerations were kept in mind.

Thorough plans must be made to keep the reserves continuously up-to-date. And sensible provision must be made for disposal of machines displaced from the reserve by newer equipment.

These machines, unused but

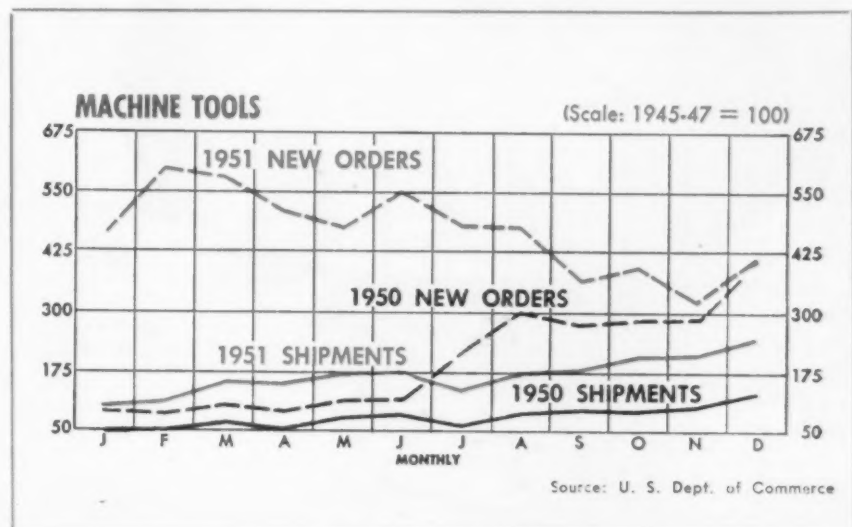
obsolete, must not be dumped on the market at low prices to compete with new machine tools and further weaken the market.

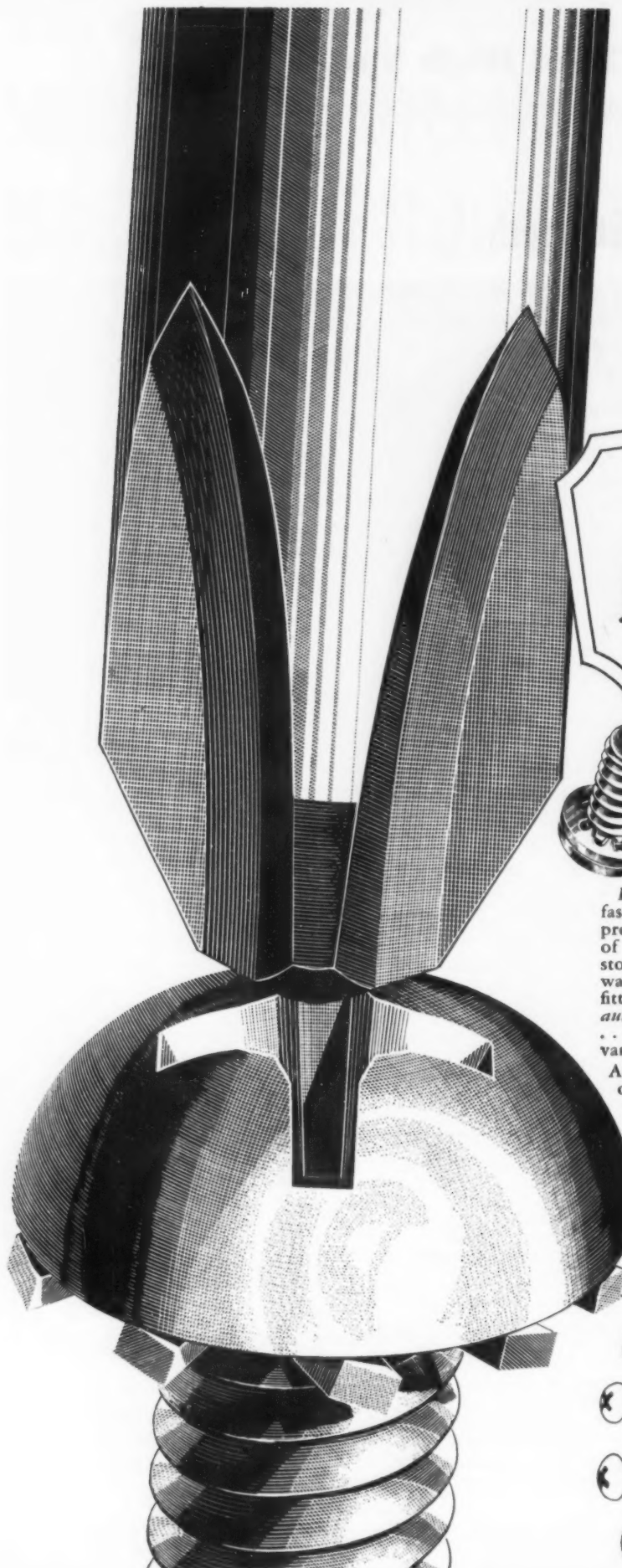
Too Many Standards—Mr. Blackall also took the occasion to deplore the existence of two different sets of electrical standards for machine tools.

Both the Joint Industry Conference and the National Machine Tool Builders' Assn. have set up electrical standards. The two organizations, one representing builders and one users, should get together and reconcile their standards, he said.

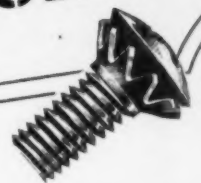
It's Frightening—Much has been written about the "Bedford Plan" for stockpiling machine tools for defense. Some of the ideas reported as part of the plan were pretty frightening to machine tool builders. Actually, no detailed plan has yet been announced by Clay Bedford, Special Assistant to the Secretary of Defense.

When the stockpiling plan is finally announced, it will be found to be closer to what the machine tool industry itself recommends than to the billion-dollar stockpile of new machines which the press has reported Bedford favors.





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AMERICAN**

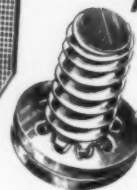


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Save Time...Cut Costs...

Improve Quality



Pre-Assembly of washer and screw provides an easier and faster means of assembling parts that require lock-washer protection under each screw head. And this sets up a chain of savings that begins with ordering and extends through stocking, inventory, handling, and assembly. In driving, all waste-motion is eliminated, for there is no fumbling and fitting of washer to screw. And American Phillips driving is *automatically straight driving*, so product quality is protected... while spoilage and lost material are held down to the vanishing point.

American Phillips Sems* Assemblies are still another type of fastening that makes American one of the world's most complete lines of screws. Now add American's modern mass-production facilities and quality control, and you've got *three* good business reasons why it always pays to "Buy American."

*U. S. Patents Nos. 2,113,424 and 2,113,425

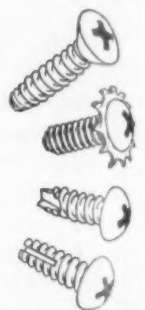
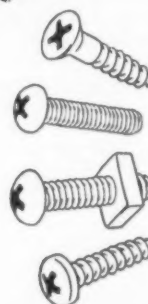


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The Iron Age

SALUTES

Francis G. Tatnall

Engineer, essayist, editor, farmer, salesman—his "drive" has done a lot for materials testing.



FRANK TATNALL puts fire into everything he does. Once as a young fire extinguisher salesman he led a crowd of prospects into an Alaskan saloon. There he built a small fire on the dance floor to show how quickly he could put it out. The thing got out of control. The fire department had to finish the job. Frank left town on the next dogsled.

His later sales and engineering efforts have been far more successful. Starting in 1928 he brought to what is now Baldwin-Lima-Hamilton Corp. firms and men whose names have become bywords in testing equipment: A. H. Emery, O. S. Peters, Alfred Sonntag—not to mention the men who developed the SR-4 strain gage.

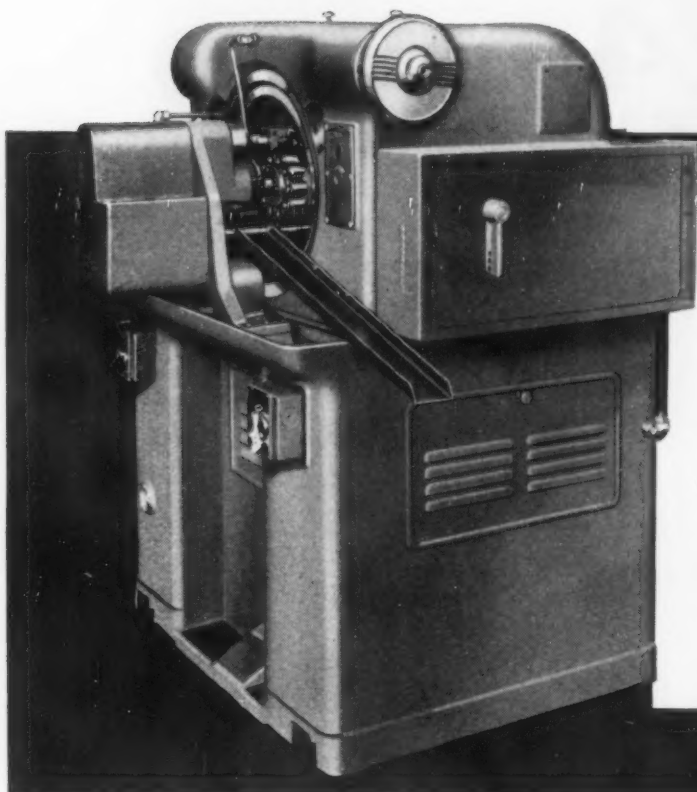
SR-4 has revolutionized static and dynamic testing of everything from bridges to aircraft. But it started off in a cloud of skepticism. Frank hit the road with exhibits, symposiums and plain hard selling. Today the only question is "Where else can we use it?"

Since 1943 Frank's been manager of testing research at Baldwin, a job calling for plenty of work. Whether it be a tiny gage for a college laboratory or a million dollar aircraft tester there's a lot of plain digging needed before some genius' brainchild materializes.

Maybe that's why Frank Tatnall always wears a harried smile. That and troubles with his farm. His latest tomato crop was magnificent—but it hit the market with every other crop in the East. He thinks now he'll go in for beef.

FOR SMOOTH THREADS...FAST!

**you'll save materials
...and manpower**



with the
**NAMCO TRIPLE ROLL
HYDRAULIC
THREAD and FORM
ROLLING MACHINE**
with Magazine Feed
and Hydraulic Loader

This precision high-production machine is the perfect answer for makers of instrument, aeroplane or automotive dry-seal parts for the defense program. Thread lengths greater than twice the diameter can be produced smoother, faster—and with a greater saving in materials and man-hours than by any other method.

The Namco Thread-Roller operates on either the plunge-cut or the feed-through principle, with interchangeable two-roll or three-roll heads and straightline support. Class 3 fit and unsurpassed finish (superior to ground-thread production) are characteristic.

Capacities range from $\frac{3}{8}$ " up to $1\frac{1}{2}$ " using three rolls—and $\frac{1}{8}$ " to $\frac{3}{8}$ " using two rolls. Because of its three-roll operation and three-point support, which eliminates distortion, the machine is a "natural" for hollow work.

To save additional man-hours and permit the use of unskilled labor, magazine feed and hydraulic loader are available. This combination makes the Namco Thread-Roller the fastest, most versatile, most accurate, most economical means of thread production available today. Send us samples of the jobs you want to do; we'll do the rest—in quoting you on your requirements.



Ask us for your copy of this twelve page bulletin (TR 49) giving complete details on the Namco Thread-Roller.

The NATIONAL ACME CO.

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Acme-Gridley Bar and Chucking Automatics;
1-4-6 and 8 Spindle • Hydraulic Thread
Rolling Machines • Automatic Threading Dies
and Taps • The Chronolog-Limit, Motor Starter
and Control Station Switches • Solenoids
Centrifuges • Contract Manufacturing

The Iron Age

INTRODUCES

Thomas A. Jones, elected president, W. A. JONES FOUNDRY & MACHINE CO., Chicago. Frederick H. Hoge, becomes chairman of the Board; Robert B. Moir, becomes vice-president in charge of engineering; Joseph A. Marland, becomes vice-president and manager of sales and service; James B. Christerson, becomes vice-president and treasurer; and Robert E. Whiteway, becomes secretary and production manager.

Harold V. Bright, appointed vice-president, KERMATH MFG. CO., Detroit.

Clarence J. Klein, appointed vice-president in charge of all engineering, WEIRTON STEEL CO., Weirton, W. Va. He succeeds E. W. Rieger, who has resigned, but will continue in the service of consultant.

Solbert J. Barsy, elected vice-president in charge of the steel division, headquarters in Chicago; John R. Matthews, elected vice-president in charge of railroad equipment department, headquarters in Chicago; and Max Mable, elected vice-president, St. Louis division scrap operations, HYMAN-MICHAELS CO., Chicago.

J. W. Clouser, appointed manager of sales, Jersey City warehouse, DUMAS STEEL CORP., Jersey City. He succeeds L. N. Montana, who has resigned.

Nelson W. Dempsey, appointed manager of operations, Chicago district, American Steel & Wire, U. S. STEEL CO., Cleveland. Mr. Dempsey succeeds the late John R. Gaut.

A. F. Koch, formerly plant manager, Norge Div., BORG-WARNER CORP., Chattanooga, Tenn., named works manager, newly formed Wooster Div., Wooster, Ohio.

Robert O. Sauer, appointed manager, engineering; James R. Donalley, appointed manager, manufacturing; Mark K. Howlett, appointed manager, marketing; and Paul D. Williams, appointed manager, finance, newly-created silicone products department, Chemical Div., GENERAL ELECTRIC CO., Pittsfield, Mass.

J. S. Wilbur, appointed manager, Ore Sales Dept., CLEVELAND-CLIFFS IRON CO., Cleveland.

R. N. McCollom, appointed manager, Application Engineering Dept., Transformer Div., Sharon, Pa., WESTINGHOUSE ELECTRIC CORP., Pittsburgh. He succeeds C. H. Bartlett, who was recently named manager of the division.

Louis C. Haltug, appointed assistant general manager, Wisconsin Axle Div., TIMKEN-DETROIT AXLE CO., Detroit. He will be located in Oshkosh, Wis. George J. Finzel, appointed company controller to succeed Mr. Haltug.

H. W. Rickert, succeeds D. C. Burrows as assistant division manager, administration, Guided Missile Div., CONSOLIDATED VULTEE AIRCRAFT CORP., San Diego. He will also continue as manager of material for the division.

J. F. Seifried, C. S. Nichols, and O. L. Davis, elected to the board of directors, CECO STEEL PRODUCTS CORP., Chicago, and four new vice-presidents appointed: C. Foster Brown, Jr., new aluminum window division; J. E. Grogan, general counsel; Raymond J. Anen, manufacturing; and E. T. Gustafson, Eastern districts. George E. White, appointed treasurer; John E. Davenport, controller; William J. Zundel, assistant controller; and William H. Ellsworth, secretary.



JOSEPH T. McNARNEY, elected president, Consolidated Vultee Aircraft Corp., San Diego.



CHARLES N. SUMWALT, appointed regional vice-president in charge of sales, eastern U. S., Baker-Rau-lang Co., Cleveland.



CHARLES B. LEVINSON, elected president, Knapp Brothers Mfg. Co., Cincinnati.

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D. A. Griffith, named assistant manager in charge of federal controls and regulations, and D. K. Steidinger, named assistant manager in charge of sales, Washington district, office, ALLIS-CHALMERS MFG. CO., Milwaukee.

W. G. Rainey, manager, Nashville sales district, named assistant manager, Southern Div., DIVERSEY CORP., Chicago.

Theodore Howard, appointed manager, Los Angeles branch sales office, MUELLER BRASS CO., Port Huron, Mich.

Edwin E. Parker, named manager, design engineering services department and acting manager production engineering services department; Maynard M. Boring, named manager, technical personnel development services department; Richard C. Sogge, named manager, standards services department; and Charles C. Leader, named manager, technical and engineering administration services department, GENERAL ELECTRIC CO., Schenectady.

L. B. Kruse, appointed district manager, Detroit office, KURT URBAN CO. INC., New York.

Wendell P. McKnown, Jr., appointed works manager, COOPER ALLOY FOUNDRY CO., Hillside, N. J.

Michael E. Errico, appointed sales engineer, LAMINATED SHIM CO., Glenbrook, Conn.

P. A. Bell, appointed district manager industrial sales, New England area, BALDWIN-HILL CO., New York.

William H. Peters, appointed manager of manufacturing, WILLYS-OVERLAND MOTORS, INC., Toledo.

Andrew Gawura, appointed sales engineer, WAYNE FOUNDRY & STAMPING CO., Detroit. Mr. Gawura replaces the late Albert V. Applett.

Charles C. Womack, appointed assistant to general superintendent, and David H. Everest, succeeds Mr. Womack as plant industrial engineer, U. S. STEEL CO., Pittsburgh.

Harold N. Taylor, appointed assistant director of purchases, LE ROI CO., Milwaukee.



W. L. WEARLY, advanced to general sales vice-president in charge of all domestic sales, Joy Mfg. Co., Pittsburgh.



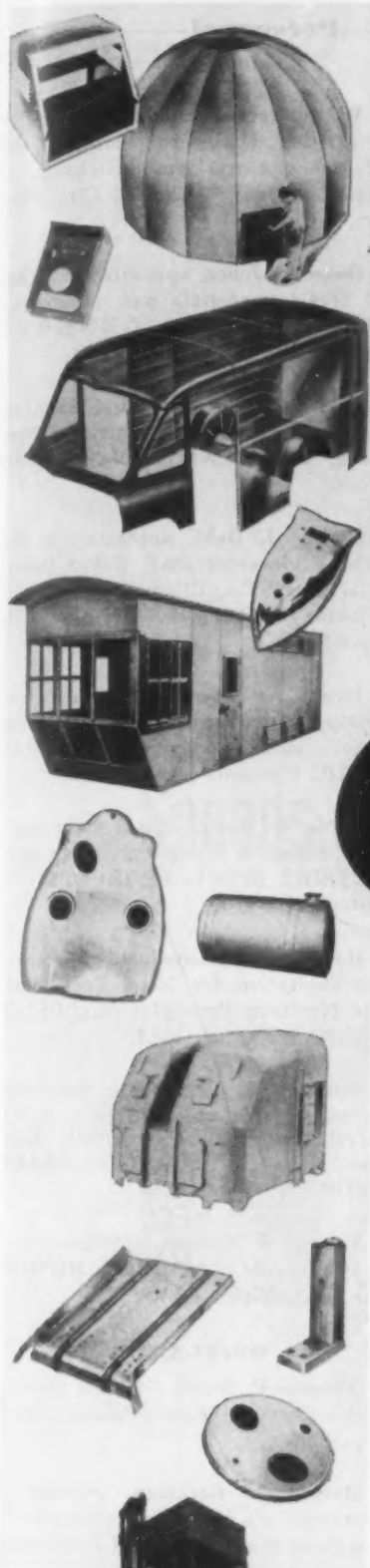
NORMAN F. MCCARTHY, elected vice-president, and appointed director of purchases, Mack Mfg. Corp.



ROBERT W. KISE, named manager of product planning, Industrial Heating Dept., General Electric Co., Schenectady.



J. A. CRAGWALL, named vice-president and manager, Kansas City Div., General Box Co.



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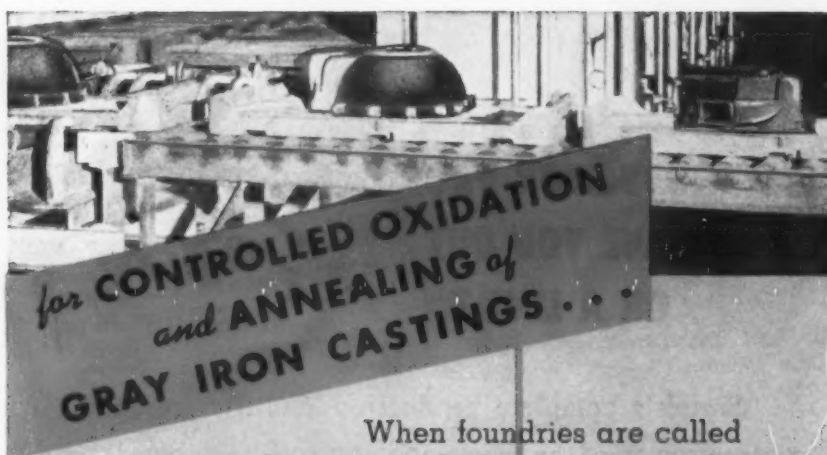
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EUROPE
S. O. F. I. M.
Paris 6, France

Personnel

Continued

W. A. Irvine, named manager of production engineering on the staff of the vice-president in charge of manufacturing, MAYTAG CO., Newton, Iowa.

Owen R. Jones, appointed manager of traffic, materials and purchasing services department, GENERAL ELECTRIC CO., Schenectady.

C. S. Stephens, appointed manager, non-food container sales division, New York, AMERICAN CAN CO., New York.

Walter J. Dahl, appointed to the sales engineering staff, Baker Industrial Truck Co., Illiana, Chicago distributor for BAKER-RAULANG CO., Cleveland.

Henry A. Browe, appointed to the newly created position of sales manager, radio division, ADMIRAL CORP., Chicago.

Clyde W. Kelly, named chief engineer, Fenestra Window and Door Div., DETROIT STEEL PRODUCTS CO., Detroit.

Robert C. Kleindinst, appointed representative for New York State and Northern Pennsylvania, DOLLIN CORP., Irvington, N. J.

Norman A. Matthews, appointed assistant chief metallurgist, metallurgical research department, Mahwah, N. J., AMERICAN BRAKE SHOE CO., New York.

Vincent J. Madden, appointed purchasing agent, ACF-BRILL MOTORS CO., Philadelphia.

OBITUARIES

Alanson P. Brush, 74, auto pioneer and maker of the once-famous Brush Runabout.

Hyman L. Berkman, founder of Steubenville's Louis Berkman Co. and the Steel Trading Corp. of Pittsburgh.

Roscoe C. Overstreet, purchasing agent, Tinnerman Products, Inc., Cleveland.

Walter Clarke Hemingway, 64, president, Pittsburgh Steamship Div., U. S. Steel Co.

William E. Fertle, 60, member of the Cleveland office, Luria Brothers & Co., Inc., Philadelphia.

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Technical Articles

PRECISION CONTROL

Speeds shell production



FIG. 1—In the "nick and break" shop, steel billets are fed under eight oxy-acetylene torches which burn "nicks". A press then breaks off a billet of proper length.



By W. G. Patton
Asst. Technical Editor

Close control at every operation is maintained in producing artillery shells at Chevrolet's St. Louis shell plant. From acetylene "nicking" of carbon steel bar through packaging of shell for shipment, 55 operations, including materials handling, are performed. Top quality is insured by 100-pct inspections at 41 places. First shell was produced 62 days after Chevrolet took over the plant. A successful on-the-job training program has been an important factor in building competent plant personnel of over 3000 persons.

From the time a 4-in., round-cornered square carbon steel billet starts through the production line at the Chevrolet Shell Div.-St. Louis until a finished shell is loaded on a freight car, 55 operations must be performed, including materials handling. The operations include hot-forging, rough and finish turning, nosing, finish grinding, welding and painting. During the processing cycle, 41 different 100-pct inspections are made by Chevrolet to insure the top

quality of the product. These inspections are supplemented by three quality control inspections by Ordnance.

Chevrolet-St. Louis Shell Div. received a letter of intent from the U. S. Government in December 1950. On Apr. 6, Chevrolet took over the St. Louis plant. The first shell was produced June 8, just 62 days later. High volume output for a single shift of workers was reached several months ago. The second shift of workers



FIG. 2—Discharge side of rotating hearth heating furnace. Operator removes heated billets one at a time and feeds them down a conveyor to a hydraulic press.

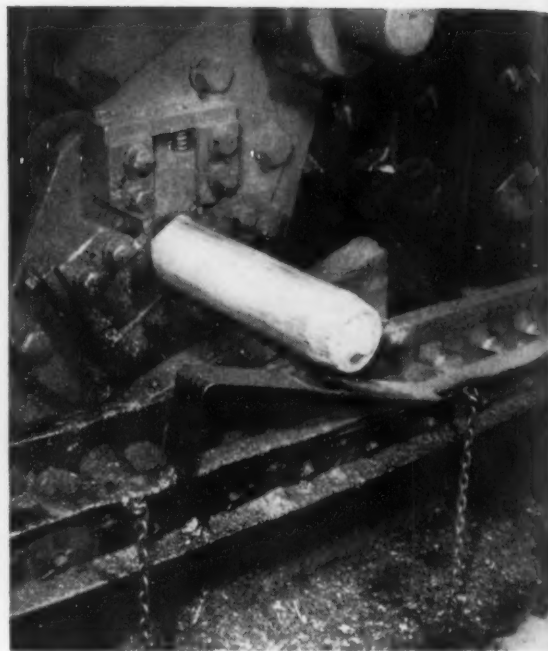


FIG. 3—Shell leaving draw bench. A previous piercing operation formed the interior of the shell. The pierced billet is then forced through two concentric rings by a mandrel.

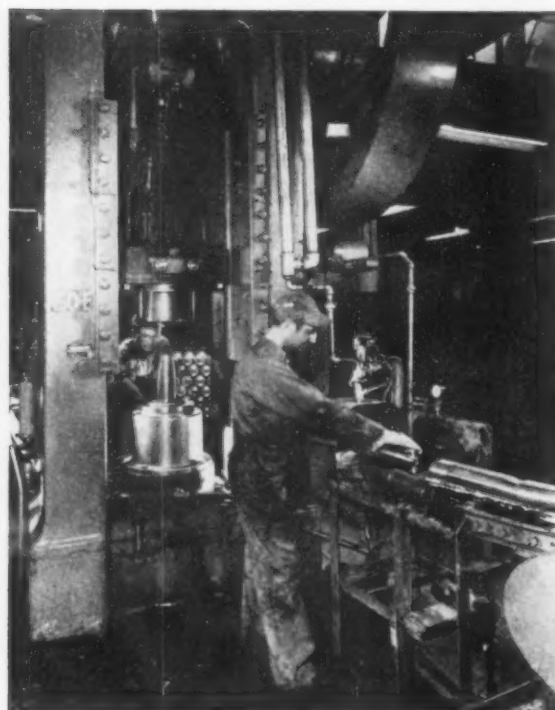


FIG. 4—One of seven cold-nosing presses which form the nose of the shell. Rough-turned shells are sprayed with drawing compound, right, before being set upright in press.

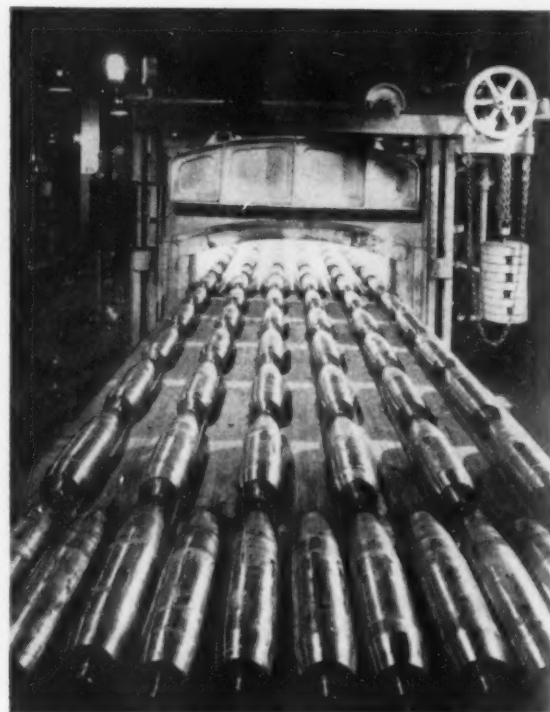


FIG. 5—Shells loaded for start through automatic heat treating furnace. This is a walking-beam type furnace, and shells are carried through heat, quench and draw.



FIG. 6—Delivery end of furnace. Each heat treated shell is hardness tested and moves to table, foreground. Conveyor dips at each table, hooks shells automatically.



FIG. 7—A line of thread-cutting machines which cuts threads in the noses of shells. Noses are gaged before threading and the parts are gaged again after threading.



FIG. 8—After semi-final inspection, at far end of conveyer, shells are moved to chain-hook conveyer to receive rotating bands. Approximately 2000 shells move in a lot.



FIG. 9—Setting copper rotating band on shell. Press is operated four times. The operator rotates the shell a short distance before each compression stroke.

Artillery shell production (continued)

is now being built up, mostly from employees transferred from the Chevrolet-St. Louis automobile assembly plant.

At present, more than 1500 workers are employed on an 8-hr shift, 6 days a week. A second shift of workers numbers more than 1300. Total employment, including salaried personnel, at the St. Louis shell plant now exceeds 3000 persons.

Except for a small group of key employees brought in from other Chevrolet plants, the entire working force has been built up in St. Louis. The Chevrolet policy of limited hiring and on-the-job training, to be described later, has been an important contributing factor in building up plant personnel. The plant is operated by Chevrolet, working in close cooperation with representatives of Ordnance.

The first requirement in the production of hot-forged shells is to "nick-and-break" the steel. Billets are "nicked" by an acetylene flame (Fig. 1) prior to breaking in mechanical presses. The eight small billets, cut simultaneously, are individually inspected for internal and surface defects.

Heating prior to sizing and piercing is done



FIG. 10—Multiple gaging of shell on semi-final line. This gage inspects seven diameters simultaneously. The lights go out if the dimensions are correct.

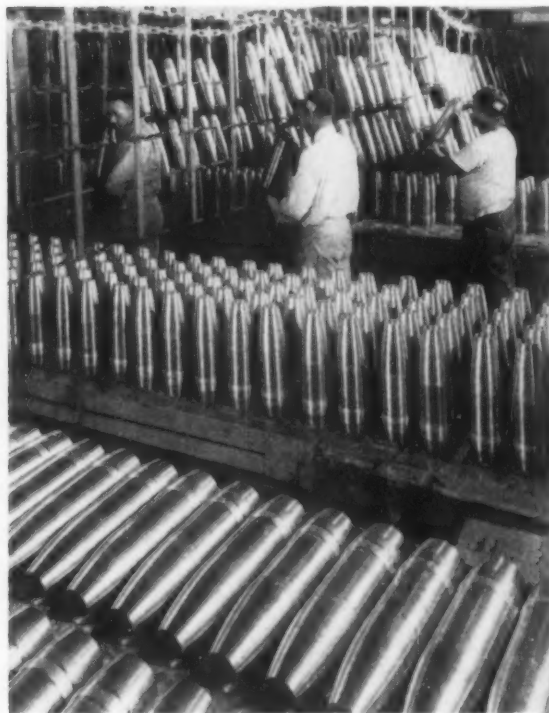


FIG. 11—After inspection by Ordnance, shells are transferred from belt-type conveyer to hooks for movement through wash and Bonderizing machine.



FIG. 12—After painting and inspection of interiors, shells receive another inspection by Ordnance. They are then covered with corrugated paper for protection.

in a Hagan rotary hearth furnace fired by oil and natural gas. The furnace, 20 ft in diam is tong-loaded. The small billets are placed on end and stand five deep in rows. Cycling time of the rotating furnace is approximately 1 hr. Heated billets are discharged on a gravity conveyor and water-jet quenched to remove scale (Fig. 2).

A press pierces the billets. In this press the punch is stationary and the die pot is attached to the ram. The punch and the pot are water-cooled. The billet is automatically knocked out at the top of the return stroke.

Following the piercing operation, the shell is transferred to a horizontal draw bench. The pierced billet is then forced through two concentric rings by a mandrel tip. A set of stripper dies automatically removes the shell from the mandrel (Fig. 3).

The forged shells are then placed on a conveyor for transfer to the machining building. Prior to machining, the forged cavity is shot blasted to remove scale.

Following a center drill operation, shells are roughed turned on special Cross hydraulic lathes.

A special press equipped with carbide dies is employed to cold-form the nose of the shell (Fig. 4). A roller turns the shell slowly, while a portion is sprayed with a nosing compound by an internal spray gun. In this cold-forming operation, the shell increases in length and the diameter is reduced slightly.

Shells washed, heat treated

After washing, shells are heat-treated in a gas-fired Surface Combustion furnace of the walking beam type (Fig. 5). Temperatures are carefully controlled to insure proper as-quenched hardness. A non-oxidizing atmosphere prevents scaling. The entering table is approximately 10 ft long.

Parts are quenched in hot oil after which they are taken by conveyor to the draw furnaces (Fig. 6).

A final shot blast removes any scale that may have accumulated in the shell cavity. The shell is then chamfered and faced to length. Horizontal lathes are used for the final boring operation.

After finish turning, the shells are checked 100 pct for surface finish. Sheffield precision air surface gages are used to check the surface finish. Finish turn dimensions are held within 0.010 in.

Following removal of the centering boss and finishing to proper length, five notches (for staking) are milled in the open end of the shell. A Hall planetary thread hobber cuts the internal threads in the nose of the shell. (Fig. 7).

The groove for the rotating band is turned on a horizontal lathe. Knurls which hold the rotating band securely in place are put on in a ma-

chine which cycles automatically.

The front and rear bourrelet dimension must be held to 0.005 in. This exacting requirement is met by finish-grinding in a centerless grinder.

At this point, semi-final inspection is held for the purpose of checking all of the finish operations and dimensions. Shells are checked by Ordnance under a system of quality control in which 110 out of each lot of 1000 is inspected in detail (Fig. 8).

A thin, steel plate is then seam-welded on the bottom of the shell to prevent any possibility of gas leaks.

The rotating band is next pressed in position by means of hydraulic pressure (Fig. 9). This operation requires four separate "squeezes" in a special press. Six male and female dies are used.

After checking the finish profile and diameter of the rotating band, the shells are weighed 100 pct on a Toledo scale.

Job training successful

Another inspection (Fig. 10) by Ordnance includes, among other things, checking the base plate, wall thickness, width of the band recess, rotating band diameter, band tightness, threads, concentricity of the shell, length, profile and surface finish.

Following final inspection, shells are washed, Bonderized and painted olive drab in automatic painting machines (Fig. 11). Another inspection (Fig. 12) is made prior to protective packing and shipping on wooden pallets.

A primary reason for the fast start by the Chevrolet-St. Louis shell plant has been the company's highly successful on-the-job training program. Approximately 95 pct of the workers are being trained on-the-job, having little or no experience with the machines they operate.

Transferred from assembly plant

Under the training plan, a nucleus of 7 or 8 trained supervisors was transferred from other Chevrolet plants. These supervisors, in turn, immediately began to train tool-setters who quickly assumed responsibility for training the new employees.

When a new worker comes on the job, the tool-setter remains with him sometimes for several days, until he is thoroughly familiar with his machine. The tool-setter continues to keep himself available until the new employee no longer requires help. In carrying out this policy, management has deliberately refrained from hiring more employees than the number that could be trained efficiently.

The training program being used at St. Louis has been particularly helpful in building up the group of workers required for the second shift. Many of the workers are being transferred from the St. Louis assembly plant but these employees, too, usually require additional training.

TREPPANNING MAKES HOLES FASTER

By F. W. Lucht

Development Engineer
Carbology Dept.
General Electric Corp.
Detroit

For deep holes, trepanning can be as much as 95 pct faster than drilling. This is partly because you can cut faster with carbides, but mostly because less of the metal is made into chips. Trepanning is not limited to deep holes. It is also used for ordinary through holes, such as gear bores. Here, too, it is usually faster and more accurate.

The growing popularity of trepanning as a method of producing holes is not hard to understand. Savings in time obtainable in deep hole trepanning with carbides, compared with using high speed steel drills, may run as high as 95 pct.

Trepanning consists of producing reasonably large holes by cutting a cylindrical groove and removing the center as a solid core. Part of the time saving over drilling is due to the higher speed and feed rates made possible by carbide-tipped tools (THE IRON AGE, Aug. 9, 1951, p. 72). But the fact that far less metal has to be removed in chips accounts for the major saving.

Holes up to 30 or 40 ft in length, and up to 4½ in. in diam, have been produced in steel

forgings by trepanning. Tolerances on these deep holes are within a few thousandths on concentricity and diameter. Of particular interest is the application of the process to the drilling of gun barrels at a rate impossible with boring tools or conventional spade drills.

But the advantages of the process are not confined to deep holes. It may be applied equally well to the producing of through holes in such parts as gear forgings, greatly reducing machining time. Accuracy in general will be better than when drilling.

Carbide tips are normally used on trepanning tools. The long life of the carbide insures continuity of cutting, as well as maintenance of closer tolerances on taper. Higher cutting

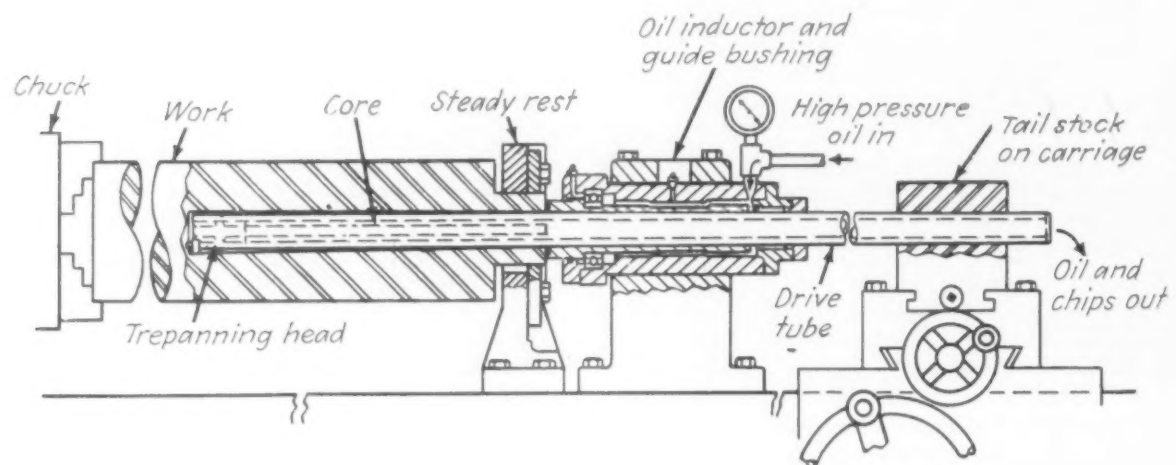


FIG. 1—Diagram indicates major components of trepanning operation, suggests how suitable lathes can be converted.

speeds and feed rates are possible with carbides. The cutter body carrying the trepanning blade must be protected against wear as it bears against the ID of the hole. Here carbide wear strips provide an excellent answer. Proper carbide speeds can be obtained over the entire cutting edge of a trepanning tool. The dead center on a spade type drill makes it unsuitable for carbides.

The table gives data on a typical trepanning operation. At the speed and feed used, total feed was 6 ipm, giving a total cutting time of only 36 min. This compared with an established drilling time of 15 hr when using high speed steel spade drills, including time required for three drill changes.

Tools can be converted

At the present time there are a few machines built in this country which were designed specifically for trepanning work (THE IRON AGE, Nov. 9, 1950, p. 85). However, it is entirely feasible to convert existing deep hole boring machines or lathes to such work. Fig. 1 illustrates a typical conversion.

The box gives the chief requirements for a trepanning machine conversion. Horsepower requirements are governed by rate of chip removal. The high power required is due to the ability of the carbide to remove chips so rapidly. Oil pressure higher than 175 psi is frequently desirable. Much work has been done already at pressures as high as 200 to 400 psi. The higher pressures of course require better oil seals.

There are several reasons for the high oil pressures required. The cutting fluid must effectively wash out the chips as rapidly as they are formed. A sufficient supply of cutting fluid must also flow rapidly enough to prevent any marked rise in either cutting fluid or work temperature. And the cutting fluid must provide adequate lubrication and cooling for the carbide wear strips. A cutting fluid with a 10 pct sulfur base is popular for this type of work.

MACHINE REQUIREMENTS

A machine converted for trepanning should have:

1. Motor horsepower of 40 to 60 hp or more.
2. Oil pump capable of furnishing at least 25 gpm at pressures of at least 175 psi.
3. Carriage fixture to support and permit accurate feed of trepanning tube.
4. Oil inductor bushing and support which also provides oil seal at bore entrance.
5. Steady rests to support work.
6. Centralization of all electrical controls and indicators at or near point of chip outlet.
7. Variable speed control for motor.
8. Gearless headstock.
9. Cutting fluid temperature and oil pressure gages.

TYPICAL TREPPANNING OPERATION

Work	Rough turned steel forging 18 ft long.
Hole	18 ft long, 2 $\frac{13}{16}$ in. in diam.
Feed	0.008 ipr.
Speed	747 rpm, 550 sfpm at outer edge of tool.
Accuracy	Hole held within 0.003 in. for size, and 0.012 in. for alignment.

Uniform control of tool feed means use of accurate lead screws. A machine considered for adaptation to trepanning may have been used a great deal for one length of work which required the carriage to move over the same place many times. It may be found that because of lead screw wear in this spot the screw should be replaced to insure uniform feed over the entire travel of the carriage.

The trepanning cutter head is attached to a non-revolving drive tube. Two types of cutter blades are currently used, a $\frac{3}{4}$ -in. wide cutter blade for holes $1\frac{3}{4}$ to 8 in. in diam and $1\frac{1}{4}$ in. wide for large sized bores. With the $\frac{3}{4}$ -in. cutter blade, oil is fed to the cutter head through the space between the drive tube and the hole ID. It is discharged along with the chips through the space between the ID of the tube and the core. With the larger cutter blade the flow is reversed, since discharge of the cutting fluid and chips around the periphery of the drive tube is advisable when trepanning larger holes.

A typical cutter head employing a $\frac{3}{4}$ -in. blade is shown in Fig. 2. The carbide cutter blade and the carbide wear strips project slightly beyond the OD of the head, providing a passage for the coolant to the cutting area.

Since chips must be broken small for ready washing out, the cutter blade has three distinct cutting edges so that three separate chips are produced. The center portion of the cutting edge leads and the two sides follow. Each cutting edge has its own step type chip breaker. Grade 78 has been found satisfactory for the tip for

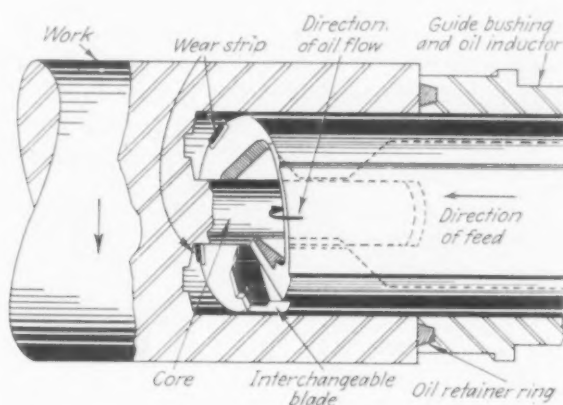


FIG. 2—Closeup of trepanning operation shows trepanning head details and principle of operation.

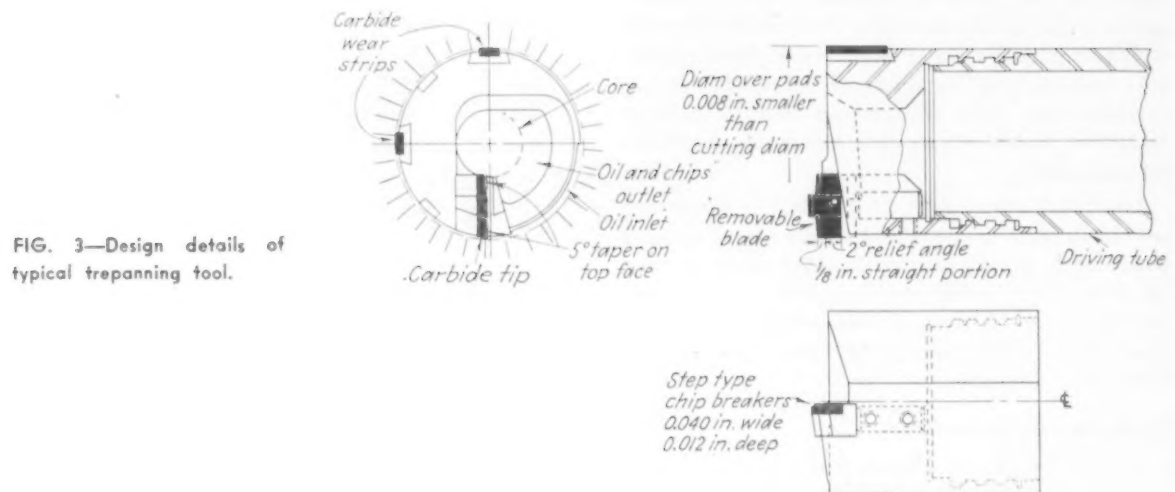


FIG. 3—Design details of typical trepanning tool.

trepanning any steel within a 200 to 400 Bhn hardness range.

Best material for the wear strips appears to be grade 78. Best cutting speeds range from about 600 sfpm for steels in the 200 to 250 Bhn range to approximately 400 sfpm for those up to 400 Bhn. These speeds are for the outside edge of the blade.

Feeds of 0.006 to 0.010 ipr have been found to work very well but best feeds for each type of job may require some modification. The important thing is to produce a fairly heavy chip. This reduces cutter blade wear. The chips must be broken up until they are small enough to pass freely through the discharge space. Feed should not be reduced if speed is increased or vice versa. In some instances, although the chips theoretically may be small enough for easy passage, the coolant pressure must be increased to flush them out properly. This is especially true

when nearing the end of extremely deep holes.

It is important that the correct cutter blade grind be secured right at the start. Wear strips are cylindrically ground in position before inserting the blade. The cutter blade is cylindrically ground to a slightly larger diameter.

Chip breaker size should not be changed when speed is changed. The size shown in Fig. 3 has been found to be satisfactory in most applications.

Trepanning speed depends on material being machined. With materials of 275 or 375 Bhn cutting speeds of 500 to 600 sfpm at bore diameter have been found to work well. Somewhat higher speeds are used for softer materials.

In some cases trouble has been experienced from extremely fine particles carrying through the conventional filter. Use of a special filter employing permanent magnets has been found helpful in such cases.

NEW BOOKS

"*Tax Sheltered Investments*," by William J. Casey and J. K. Lasser. The problem of how to invest both personal and corporate funds to best advantage tax-wise receives special consideration. Advantages and disadvantages of many special forms of investments such as oil, mining, cattle, agricultural and timber are studied. Business Reports, Inc., 225 W. 34th St., New York 1, N. Y. \$12.50. 138 p.

"*Foundry Practice*," by William H. Salmon and Eric N. Simons. A simple, accurate text designed for the intermediate student of foundry practice. The 12 chapters in the book range from a discussion of blueprints through a chapter on quality control. Pitman Publish-

ing Corp., 2 West 45th St., New York 36. \$6.50. 384 p.

"*Symposium On Thermal Insulating Materials*" presents in printed form five papers and discussions on the components of thermal insulation properties as originally presented at the March 1951 meeting of the American Society For Testing Materials. American Society For Testing Materials, 1916 Race St., Philadelphia 3, Pa. \$1.50. 57 p.

"*Kodak Wratten Filters for Scientific and Technical Use*." The book discusses forms and types of filters, their standards, use of specific filters and care of filters in general. Eastman Kodak Co., Rochester 4, N. Y. 75¢. 78 p.

New gas cutting techniques

AID HEAVY SCRAP REDUCTION



By R. F. Helmkamp and A. H. Yoch

General Technical Sales Dept.
Air Reduction Sales Co.
New York

With the development of gas cutting techniques and related equipment, many steel mills have been mining buttons and skulls buried years ago. Severing massive spills, dismantling heavy steel equipment, and reducing other large pieces of metal to charging-box size, has become standard practice.

Today, with machine gas cutting as well as manual cutting of scrap becoming standard practice, and with the cost of cutting methods declining, economies are made by retrieving masses formerly too bulky to handle or too low in value to bother with.

But there are mill men still unaware of the feasibility and economy of heavy scrap cutting with gas. And there are also those who have adopted elementary gas cutting methods but who do not appreciate the economy of improving on those methods with machine gas cutting equipment.

Each application of a gas cutting method for the reduction of scrap to charging box size has its own peculiar factors and operating conditions. It is not practicable to set up a table of comparative speeds, pressures, costs, thicknesses to be cut, and tips that would accurately

Are you doing the most with available gas tools for scrap cutting? The hand torch will do more than many realize. Combined cuts with torch and lance will handle thick, scaled metal. For the really big jobs, machine cutting slices big skulls and spills often considered too big to cut up. A new technique utilizes an old gas cutting machine to reduce heavy scrap loaded on flat cars.



HAND TORCH gas cutting handles the general run of purchased scrap like that shown in this scrap yard.

Gas cutting (continued)

demonstrate the differences in the use of each method. The accompanying tables thus are only approximate guides, for consistent thicknesses.

The general economy and practicability of scrap cutting with oxygen are perhaps best exemplified by several applications which, though they differ in detail, all add up to customer satisfaction and an accelerated preparation of scrap tonnage for the steel mill.

The oxyacetylene cutting torch, manually operated, is an indispensable tool for reducing a large percentage of scrap of the purchased variety. Here weight and thickness are not too great for complete penetration but a high degree of torch maneuverability is necessary. Table I gives an approximate guide on hand torch cutting.

It is important not to underestimate the penetrating capacity of the hand cutting torch if the scope of its application is not to be unnecessarily limited. A broken drop ball at the plant of a large steel mill was successfully scrapped by this method. The depth of the manual cut was 34 in.

The cutting of foundry spills and other steel masses beyond the scope of the manual torch alone can be accomplished with the oxyacetylene cutting torch and the oxygen lance in cooperation. The torch leads the cut and the lance operates in the kerf.

This combination, involving two operators, has been employed successfully in severing steel casting risers for scrap up to 90 in. in diam. The combination method is particularly useful where a mixture of steel and slag is to be severed, since the oxygen lance will assist in cutting through interruptions in the steel mass. A free flow of cutting slag from the kerf is assured by the oxygen lance.

When a large steel mill experienced difficulty obtaining sufficient scrap to keep four of its seven open-hearth furnaces in operation, use of



COMBINATION procedure utilizes operator with hand torch and one with oxygen lance, working in same cut.

TABLE I

HAND TORCH CUTTING GUIDE Constant Metal Thickness—Continuous Cutting

Metal Thickness, in.	Cutting Tip Size, Style 124	Oxygen* Pressure, psi	Acetylene* Pressure, psi	Range of Speeds, ipm	Gas Consumption, cu ft per linear ft of cut	
					Oxygen	Acetylene
2	4	50	3	5.5-7.0	7.8-5.9	6.83-0.67
2 1/2	4	50	4	5.5-6.5	9.4-8.0	8.92-0.75
3	5	50	4.5	5.0-6.0	12.9-9.8	1.23-1.01
4	5	60	5	4.0-5.0	19.5-15.2	1.30-1.08
5	6	50	5	3.5-4.5	26.7-20.7	1.89-1.47
6	6	55	6	3.0-4.0	33.6-25.0	2.05-1.55
8	7	60	7	2.5-3.5	52.0-37.2	3.07-2.20
10	7	70	7	2.0-3.0	73.8-49.2	3.69-2.49
12	8	70	7	1.5-2.0	117.2-87.7	5.65-4.20

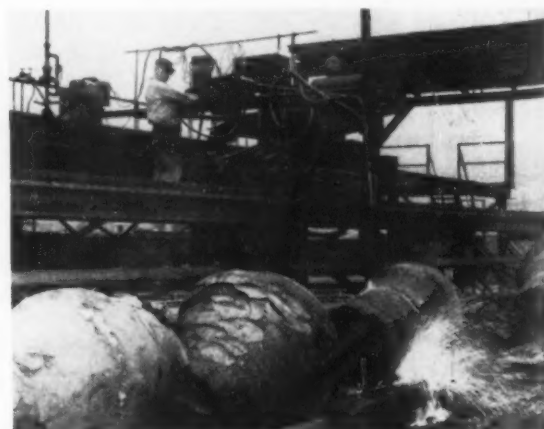
* For hose lengths up to 25 ft, measured with preheat valves open.

the oxygen lance was recommended. This was to permit salvage of heavy melting scrap from the open-hearth spills, skulls, and lost heats which has accumulated in the yards during the years. Approximately 900 tons of scrap were salvaged in less than a month.

An open-hearth spill measuring 10x5x15 ft was sliced by the oxygen lance into proper size for charging. This piece weighed approximately 75 tons and was severed in 24 hr by the oxygen lance, consuming between 20,000 and 25,000 cu ft of oxygen. Oxygen pressure is usually 75 psi for this type of operation. Being a mixture of steel, brick, and slag, the spill was cut more easily by feeding old nuts and bolts into the cut ahead of the jet.

Some steel mill men who have been cutting scrap with the oxyacetylene hand torch and the oxygen lance have learned an even better way of getting a big job done. For example: A large steel mill company was using the cutting torch and lance method. Gas cutting specialists interested this company in a machine gas cutting installation to expedite operations and to reduce costs.

The equipment consisted of a Radiograph,



TRAVOGRAPH, World War II model, mounted on jib crane cuts up heavy scrap moved to it on slag-protected flat cars.

fitted with a water-cooled bar, and a heavy duty torch with cutting tips suitable for heavy scrap. The entire motorized torch unit was mounted on a job crane which was attached to a crane column in the scrap yard at a point convenient to crane service.

The jib crane was arranged so that it could be raised or lowered by means of a 1-ton electric hoist mounted on the column, thus allowing the torch to be positioned to suit the height of the work.

Experience indicates that, for machine cutting of skulls and similar heavy scrap, an average of approximately 500 cu ft of oxygen and 50 cu ft of acetylene is consumed per ton. Cutting oxygen pressure used is 20 to 25 psi and acetylene pressure is 10 psi.

More scrap handled per month

Formerly, this company averaged only 150 tons of heavy scrap per month, and it was not all cut to charging-box size. It was necessary to wait until front walls of the open-hearth furnaces were torn down to permit the charging of oversize pieces. Now this company averages 500 tons of heavy scrap per month, all cut to charging-box size. It used to take two days to cut a button. With machine gas cutting it can be done in 15 minutes.

Another scrap yard, with scrap ranging in thicknesses up to 15 in, mostly 3½-pct nickel plate, now employs a Radiograph and track with a 3-hose torch using appropriate cutting tips, with oxygen supplied from a 15-cylinder manifold. The amazing economy of approximately 80¢ per ton for gasses was realized in this operation, on 100 tons of scrap a day.

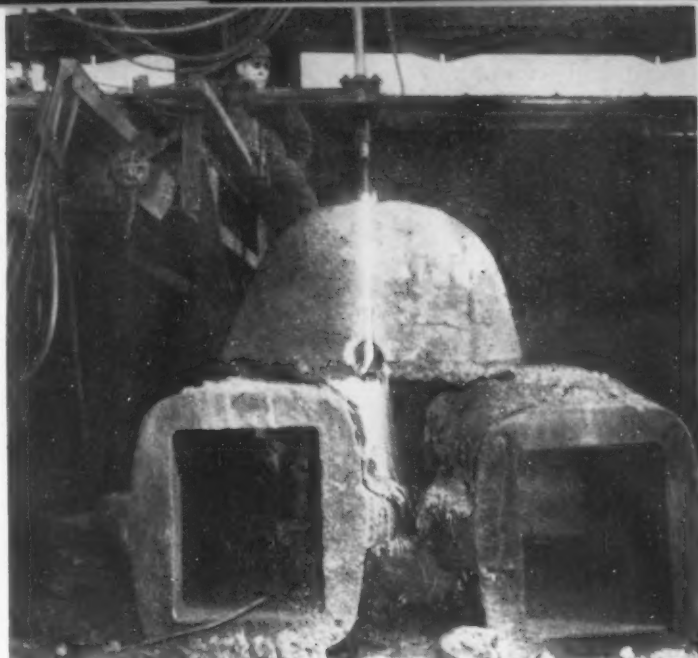
Skulls and spills in another yard ranged in weight from 1 to 30 tons and varied from 2 in. in thickness at the edges to 4 ft in the center. This scrap was reduced by a properly installed Radiograph equipped with a heavy-duty, water-cooled torch and related equipment.

TABLE II

MACHINE CUTTING GUIDE

Constant Metal Thickness

Metal Thickness, in.	Tip Size	Pressure, psi		Speed, ipm	Gas Consumption, cu ft per hr			Width of Kerf, in.
					Preheat		Total Oxygen	
		Style 174	Oxygen		Acetylene	Acetylene			Oxygen
12	11	30	6	4	132	145	1325	.39
14	12	25	6	4	162	178	1420	.44
16	12	30	6	3½	162	178	1753	.44
18	13	25	8	3½	220	242	1932	.50
20	13	30	8	3	220	242	2192	.50
22	13	34	8	3	220	242	2452	.50
24	14	24	10	3	272	299	2574	.58
26	14	29	10	3	272	299	2879	.58
28	14	33	10	3	272	299	3184	.58
30	15	23	13	3	347	382	3182	.66
32	15	27	13	2½	347	382	3582	.66
34	15	31	13	2	347	382	3932	.66
36	15	35	13	2	347	382	4292	.66



HEAVY-DUTY torch on travelling machine handles big scrap often thought uneconomical to reduce.

Table II gives approximate machine cutting data, for constant-thickness, clean steel.

A steel mill had been lancing and blasting with dynamite to reduce its heavy scrap until a time study indicated considerable loss of man-hours caused by clearing the area for blasting. Also, the large number of buttons, skulls, spills and forging butts represented a tough handling job even with cranes. These irregular masses weighed about 15 tons each and ranged from 2 to 6 ft in thickness. They were being mined from buried scrap that had accumulated over a period of 50 years and they were also being produced by current mill operations.

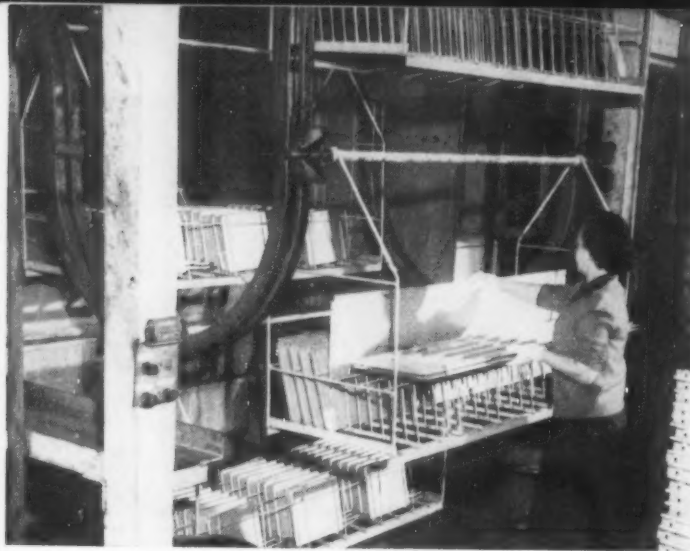
An old Travograph left over from World War II was mounted on elevated rails and equipped with a heavy-duty machine cutting torch. A special motorized torch holder was mounted on the torch bar of the Travograph. A special tracing device with remote controls also was built.

This arrangement affords any direction of cut on the horizontal plane: Straight, diagonal, or V shape. And the torch can be lowered or raised vertically by a motorized unit to accommodate the contours of the scrap.

The heavy scrap is loaded by crane on flat cars prepared with a bed of slag and scale. Once loaded, the cars are moved under the Travograph. Cuts are made short of complete penetration in order to prevent the huge masses from falling into positions which would require additional handling.

The next operation is to dump the scrap from the cars into a breaking pit. There a crane is used to drop a 15-ton ball on the scrap, completing the severing operation by impact. The scrap is thus reduced to charging-box size.

This operation, which has been underway for more than a year and is likely to continue for an indefinite period, is resulting in an enormous recovery and preparation of scrap tonnage.



ALUMINUM PANELS used in refrigerator evaporator units start trip through treating line at General Electric Plant. Caustic etching compound gives fine, uniform finish without depositing sludge and scale in tank.

Caustic etch treats aluminum

WITHOUT SLUDGE
OR SCALE



By R. J. Stell

Assistant to general sales manager
Diversey Corp.
Chicago

Formation of sludge and scale in caustic treatment of aluminum has been virtually eliminated with a new caustic etching product. Tried at General Electric's refrigerator plant, down-time for sludge removal has been substantially reduced. Dissolved aluminum remains in solution as sodium aluminate rather than being deposited as alumina on tank walls and heating coils. Tanks are easily cleaned by hosing. More consistent finishes are reported.

Use of a new caustic etching compound for treating aluminum evaporator panels and tubes at General Electric's refrigerator plant in Erie, Pa., has eliminated frequent shutdown for removal of alumina sludge and scale from tanks. Tank cleaning and maintenance costs have been reduced.

The etching compound, Diversey Aluminux, solves a number of problems connected with the use of caustic materials for treating aluminum.

As aluminum is dissolved in caustic soda solutions, sodium aluminate is formed and hydrogen gas evolves at the surface of the aluminum. For ordinary caustic solutions the sodium aluminate quickly converts to aluminum oxide (alumina) which is deposited as a hard-to-dissolve sludge and scale. Formation of sludge and scale is directly proportional to the amount of aluminum processed.

Sludge causes shutdowns

In most plants frequent shutdowns must be made to remove these accumulations in the tanks. In high production work it is not unusual for 1 to 2 ft of sludge to build up in 4 or 5 days, preventing work from being completely immersed in solution.

Sludge and scale have an insulating effect on steam coils and heaters. A film of alumina scale reduces the transfer of heat to the solution, thus requiring increased steam pressure. Many plants operate their etching solution at 140°F instead of 160°F due to scale build-up.

Alumina scale cannot be dissolved by ordinary chemical agents, and for the most part must be chipped off, resulting in high maintenance costs. Life of tanks, coils, or other heating elements is shortened by excessive hammering. Steam coils must be replaced regularly.

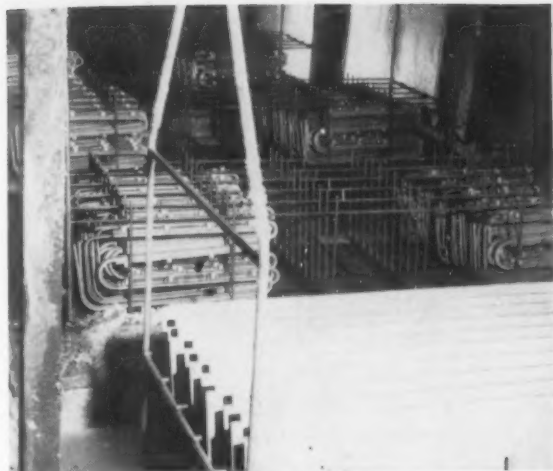
Alumina sludge prevented

Until recently formation of sludge and scale has been more or less taken for granted. Caustic etching products containing phosphates, metasilicates, and wetting agents have been designed to overcome some of the difficulties associated with sludge and scale. These have on the whole been unsuccessful. In some cases, sludge and scale has been made to precipitate in a more finely divided form but the amount of residue has remained essentially unaffected.

The new etching product solves the major problem of prevention of alumina sludge and scale. It contains an agent which prevents formation of alumina sludge and scale by holding sodium aluminate in solution. Solutions are clear without the usual suspended matter characteristic of ordinary caustic materials. A 1000-gal solution can retain more than 1½ tons of dissolved solids.

Since the quantity of work processed in an etching solution is proportional to the caustic soda content, Aluminux contains a minimum of 90 pct caustic.

As more and more aluminum is processed, the



STIPPLED 2S sheet and 3S tubing used for evaporator sections are shown loaded in baskets on 11-tank conveyerized treating line. Tanks are of 316 stainless steel.

solution may become supersaturated with respect to dissolved aluminate with the result that sludge may build up. In most applications this condition is never attained. Carryout in the average case compensates for the new aluminate formed so that the dissolved solids remain unchanged.

Alloying ingredients in aluminum alloys such as manganese, iron, and silicon precipitate out as a fine black sludge. This accumulation is relatively small and constitutes no serious problem in hosing out the tank.

Steam and other heating costs are reduced by preventing insulation build-up on steam coils and heaters. The difficult task of removing build-up in the tanks is eliminated. The solution can be discharged freely like typical alkaline cleaning solutions. Aluminux produces a finer, more uniform etch. Minimum fuming and control of foaming characterize the solutions.

Simple titrating method

A simple method of titrating solutions indicates the proportion of active caustic and the amount of dissolved aluminate.

The concentration suitable for most applications is 3 to 4 oz per gal. It is advisable to maintain the concentration at a minimum of $2\frac{1}{2}$ oz per gal to assure scale and sludge control.

Temperature of the operation will depend on the results desired. The time of contact may vary from 30 sec to 5 min or more. Upkeep additions should be made as indicated by test.

At the General Electric plant stippled 2S sheet and 3S tubing for evaporator sections are processed. An 11-tank overhead conveyerized line is designed to remove flux and surface irregularities, and produce a fine uniform satin finish.

Two acid tanks are followed by two cold running rinses, the caustic etching tank, two cold running rinses, two desmutting solutions, a cold rinse and a warm rinse. Aluminum panels, pre-

viously cleaned and, in most cases, brazed, are loaded into baskets which are returned overhead to the starting point.

All tanks are of 316 stainless steel. The 1370 gal etching tank is double the capacity of the other tanks. The tank bottom slopes for easy clean-out. Heating and cooling coils assure close control of operating conditions. Plate heat exchangers are used in place of steam coils.

The work is immersed in all tanks except the etching tank for 85 sec. Total immersion time in the etching tank is approximately 3 min.

Formerly straight caustic soda and proprietary products were employed. Sludge build-up was rapid. The tank was recharged after every 10 operating days. It was also necessary to remove sludge at intervals previous to dumping. Three to five men worked through one shift to clean the tank.

To eliminate frequent shutdowns in production, a new caustic agent was sought. Using Aluminux under similar operating conditions, 160°F at a concentration of 3 to 4 oz per gal, the problem of sludge and scale formation was eliminated.

Solution recharged after 4 weeks

After 20 shifts on a comparable 2-week run no sludge or scale had formed in the tank which in any way interfered with production. During this period, over 3000 sq ft of surface per hour were treated. At the end of 2 weeks the solution had reached a dissolved content which remained constant despite additional aluminum processing. Carryout exactly equaled the formation of new aluminate in the solution. There is no danger of sludge or scale forming regardless of the amount of aluminum treated.

At present, General Electric recharges the solution after 4 weeks. At this time the solution tank generally contains only a very small amount of alumina, sludge and scale. Tank clean-up requires one man working for 1 hr with a high pressure hose to rid the tank of the deposit of inert alloying ingredients.

TYPICAL SLUDGE and scale buildup in caustic etching tank is shown below. Cut-away areas emphasize scale thickness.



MODEL MILL ROLLS

MODEL RAIL



By Dillon Cox

and

W. P. Wallace

Dept. of Engineering
University of California
Los Angeles



This rolling mill cold-rolls model railroad rail in four passes. Original "bloom" is 0.162-in. diam wire. One pass includes a horizontal roll. Model was built to demonstrate rail rolling to engineering students.

A model rolling mill has been developed to illustrate rail rolling to engineering students. Hot rolling of an AREA 180-lb rail from a 9½-in. square bloom requires some 15 to 20 passes. This added to the technical problems and cost of equipping for hot rolling, made a hot rolling demonstration model impractical.

It was therefore decided to produce the rail by cold rolling in four passes. Reduction is from an original "bloom" of 0.162-in. diam wire to a rail approximating model railroad HO gage rail. The dimensions are shown in Table I.

The height of the rail is greater than the bloom dimension and the area of the rail is less

than that of the original wire, so it was necessary to design the roll forms so that the metal would flow in two directions: in the rolling direction, and at 90° to it. Actually, in the four passes, the elongation in the rolling direction is 87 pct, the reduction of area is 79 pct, and the increase in the direction at 90° to the rolling direction is 11 pct. Mechanical properties were changed in rolling as shown in Table II.

The development of roll forms was accomplished by trial and error, guided by preliminary computations that each pass should reduce the area about 20 pct. Several forms were tried before the final design was accomplished. Fig. 2

TABLE I
MODEL RAILROAD RAIL DIMENSIONS (In.)
ROLLED FROM WIRE

Height.....	0.1800
Base.....	0.1580
Head.....	0.0625
Head depth.....	0.0400
Base depth.....	0.0400
Web.....	0.0312
Base angle.....	15°
Weight per yard.....	0.121 lb.

TABLE II
MECHANICAL PROPERTIES BEFORE AND
AFTER—SAE 1010

Property	Original Wire 0.162 in. diam.	Finished Rail
Tensile Strength, psi.....	53,400	105,600
Yield Strength, psi.....	44,600	89,640
Elongation, pct.....	34	3.5
Hardness, RB.....	37	90

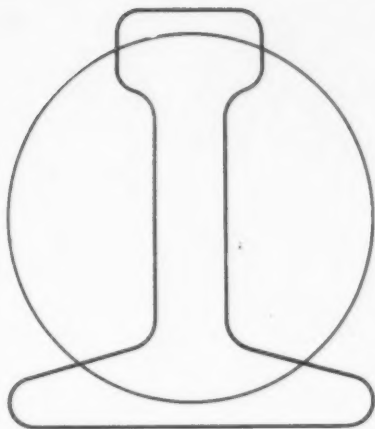


FIG. 1—Original and final cross-sections in rolling model rail. Original area is 0.0206 sq in. Final area is 0.01004 sq in. Reduction is made in four passes.

illustrates the four passes which were designed and constructed.

The first pass, consisting of two vertical form rolls, works on one side of the material in an attempt to shift a maximum width into position and enable the rail flange to be rough-formed by the second pass. Due to the tandem construction of the mill, the second pass employs a horizontal roll as well as two vertical rolls. The vertical rolls act as guides while the horizontal roll completes the rough forming of the rail flange.

In the third pass, the rail flange is sized while the railhead and web section are reduced. The final pass reduces the entire rail cross-section to finished dimensions. Fig. 3 illustrates the general assembly of roll forms in the model rail mill.

Power is supplied to each pass by an electric motor through a variable-speed hydraulic transmission and a series of belt and gear reductions, thus offering variable rolling speeds for experimental purposes. Fig. 4 illustrates the rolling mill.

Since the rolling operation is continuous, the roll speed of each pass had to be predetermined and set by means of the hydraulic transmission to insure proper operation during rolling. Also, since the area reduction at each pass is known, the elongation of each pass could be calculated and then checked experimentally. Calculations were based on the fact that the volume remains constant during the rolling operation.

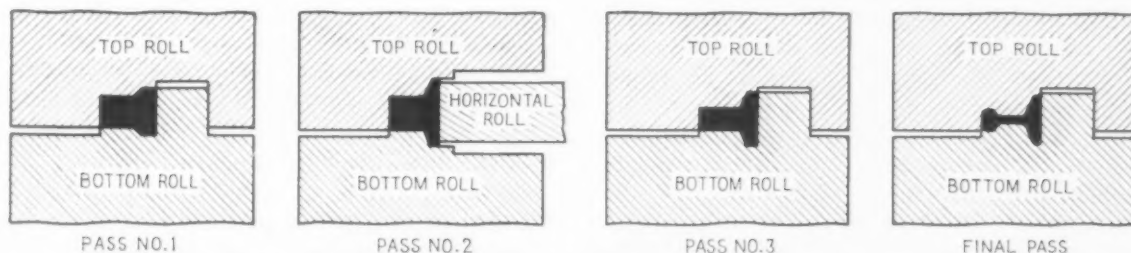


FIG. 2—Sketches of roll forms used in model mill. The second pass employs a horizontal roll.

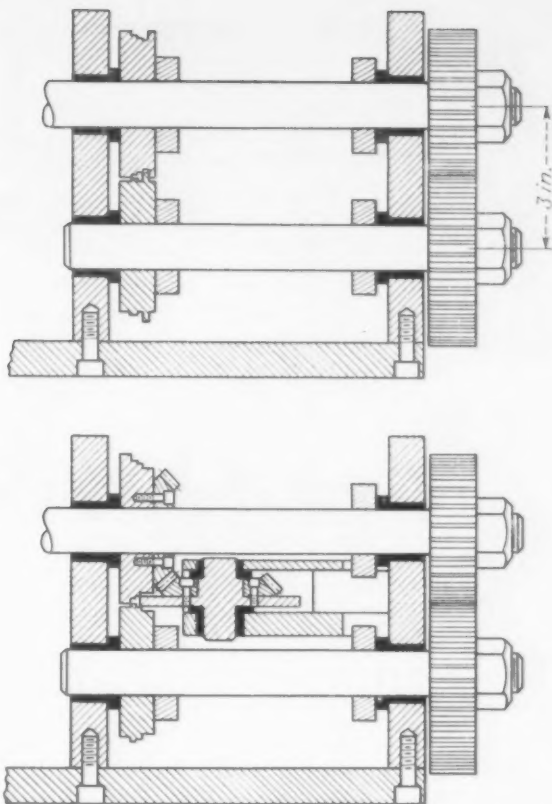


FIG. 3—General design and assembly of model mill passes. Top: Passes 1, 3, and 4. Bottom: Pass 2.

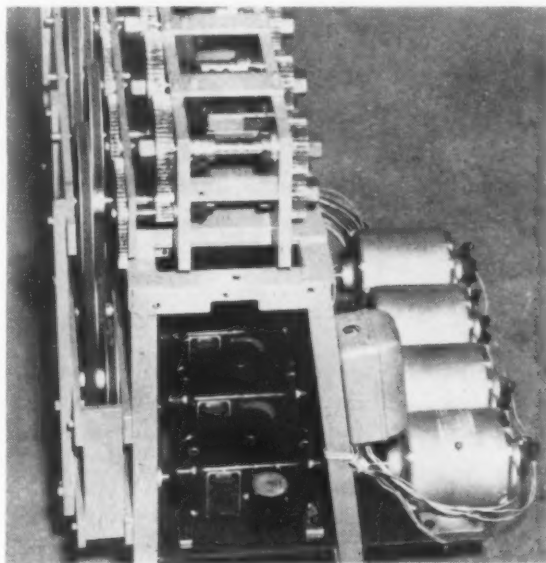
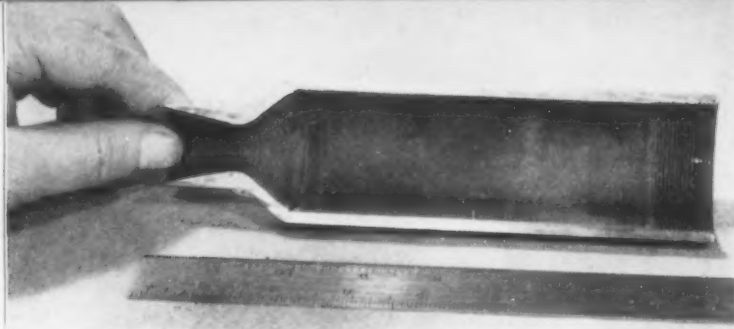


FIG. 4—End view of the model rolling mill. Motors and variable speed transmissions at bottom, rolls at top.



CROSS-SECTIONAL photograph of bazooka motor body.

Close-tolerance steel parts

AUSTEMPERED WITHOUT DISTORTION

Specifications required prevention of ovality and tolerances of 0.0015 to 0.002 in. throughout the 3.5-in. rocket motor. Yet high-production requirements necessitated machining the 4140 steel in the annealed condition—and before hardening. A modification of austempering was worked out, using automatic, continuous saltbaths and conveyer system. Hundreds of motor bodies are processed an hour. A completely bainite microstructure at 34 to 39 RC was obtained by drawing the work at a higher temperature than it was quenched.



By John Kolb
Associate Editor

Mechanized salt bath equipment is making the 3.5-in. bazooka rocket a safer weapon. It does this by reducing distortion and permitting close control of temperature, time at temperature, and rate of quenching.

Research and development in this application was done in close cooperation between metallurgical and engineering departments of Christy Park Works of National Tube Co. and the engineers of Ajax Electric Co., Philadelphia.

The Ordnance Corps had to be sure that rocket motor bodies would be of high strength and held to close tolerances. Except for some preliminary preforming of the rocket motor made of WD 4140 steel, specifications called for most of the machining to be done after heat treatment. The contours and strength of the rocket motor body determines whether the pressure generated is correctly and safely used.

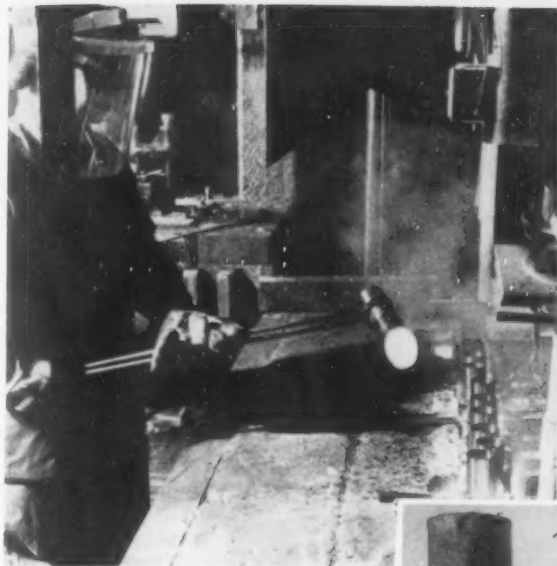
The difficulties of machining heat treated 3.5-in. rocket motors seriously interfered with

high production. Even if machining could be done, this cold working might produce undesirable internal stresses. Tests of pressure tightness, ovality and other such factors were mandatory.

At Christy Park Works, heat-treating techniques developed under the direction of F. C. Raab, chief metallurgist, permitted all the machining operations on the rocket motor body to be done before heat treatment. Close tolerances of 0.0015 to 0.002 in. throughout, unusual for such a large-scale production item, are being held successfully.

Even the machining of a critical, close-tolerance trap seat located at the motor section's discharge end, is now done before heat treatment. Each step required acceptance by the Ordnance Corps, and the revised production sequence is now being used with the Corps' complete agreement.

The continuous heat-treating unit which car-



HEATED FOR FORGING to 2150°F in salt bath, there is a sharp line of demarcation between 1½-in. section to be formed and the unheated portion. There is no scale developed in this process.



CYCLIC ANNEALING of forged rocket motors takes place in this salt bath, which relieves internal stresses. Afterwards, parts are dumped into water rinse (foreground).



ROCKET BODY at left has finished annealing cycle. The one at right has been ground and is ready for machining.

ries the work through a heating, quenching and tempering operation represents a considerable advance in salt bath practice. Hundreds of rocket motor bodies are processed per hour.

When this process began, hot-rolled tubing was used, but with the cooperation of the Ellwood City mill of National Tube Co., this has been changed to hot-rolled cold-sized tubing, with less stock allowance and closer tolerances. This 2.125-in. OD tubing, received in long lengths, is cut into 8-in. pieces.

Preforming for hot forging of the neck consists of turning and boring operations on both the inside and outside diameters. This provides certain contours required to produce the proper shape after forging.

About 1½ in. of the preformed tubing is heated to 2150°F for about 1½ min and forged. Heating for forging takes place in a 14-pct sodium chloride, 86-pct barium chloride salt bath, melting point 1450°F. Working dimensions are 48x4x21-in. deep, and the unit is rated at 135 kw. This selective heating has a sharp line of demarcation between the heated and unheated areas. A single pass provides the necked down discharge end ready for finished machining.

An important characteristic of this pre-forging bath is its ability to bring parts up to temperature without the formation of scale.

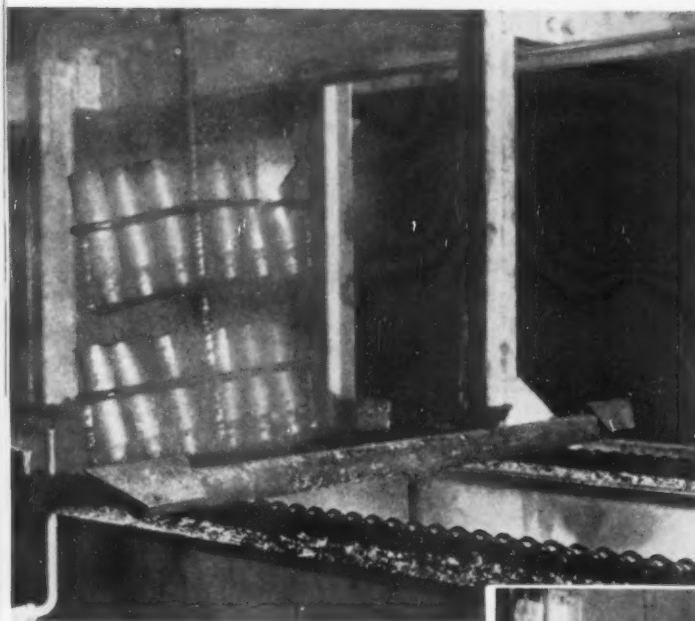
The forged body is removed from the press at about 1900°F and immediately dropped into a basket in the cyclic annealing salt bath furnace. The bath in the furnace is operated at a temperature below the A_{r1} . The forged rocket bodies are held in this bath long enough to relieve forging stresses. As each basket is filled, it is moved along by a chain conveyer toward the discharge end. When the basket is removed from the furnace, the rocket bodies are dumped into water. This cyclic annealing is done in an Ajax furnace, working dimensions 66x33x40-in. deep, with a 120-kw rating.

All machining, grinding, turning, boring,

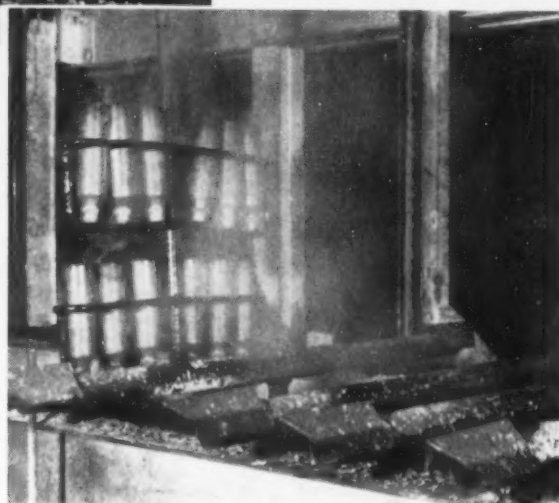
THREE-STEP, modified austempering of rocket motors is performed in this 40-ft long saltbath. Loading and unloading of racks occurs at front of unit, at left and not shown. Jack-rabbit mechanism carries racks of parts to rear of machine, where cycle starts. The following sequence then takes place: pre-heating, high-heating, quenching, drawing, cooling and rinsing.



Close tolerance heat treating (continued)



A FAST TRANSFER of the rocket motors from the high-heat bath into the quenching tank helps to prevent excessive cooling. Salt solution flow is directed up, through and around the parts to assure uniform results.



DRAWING of the rocket motor bodies occurs at a higher heat than they are quenched. This results in a fully bainite structure with desired 34 to 39 RC hardness.

threading and knurling are done next.

Heat treating of the work is accomplished in a three-step, modified austempering operation. Normally, austempering is done by first heating in an austenitizing bath and then quenching at the desired hardness. However, quenching at the point required to produce this hardness would not have entirely eliminated high-temperature pearlitic products.

So, instead, a lower quenching temperature is used. This is followed by the draw at a higher heat. As a result, the desired hardness of 34 to 39 Rc is obtained with a tempered bainite micro-

structure.

This heat treatment takes place in a 40-ft long unit. The loading and unloading of this continuous automatic equipment is done at the same end by one operator. Racks that hold 12 rocket motor bodies each are carried by a conveyor mechanism to the rear of the equipment, where the heat-treating sequence begins. Separate conveyers take over the work in each tank, geared so that each rack spends exactly the required time in each bath. The conveyor system automatically picks them up again as they complete their treatment periods. Temperatures in these individual baths are automatically controlled.

In the first cycle in the isothermal heat treatment, the parts go into a 175-kw preheating salt bath, measuring 57x24x27 in. Transfer to the next tank, the high-heat bath, takes 25 sec. This bath is rated at 140 kw, dimensions 66x24x27 in.

A very rapid transfer then takes place, getting the motor bodies from the high-heat bath into the quenching tank before there has been any appreciable cooling.

At a point where the rack with rockets enters the quenching bath, the salt is flowing upward, through and around the parts. This flow is produced with a pump. Quenching takes place in a 97x24x24-in. tank with a 110-kw rating. Transfer of a rack of motor bodies to the tempering bath takes 56 sec.

After the conveyor has lifted the racks of heat-treated rocket motor bodies out of the salt bath in which they are tempered, a cooling period ensues. This cooling occurs as the racks are moved by the conveyor towards the final rinsing baths. As they are submerged in the first of these two hot-water tanks, the temperature of the parts is about 400 to 450°F.

Each rocket motor body is subjected to 25,000 psi hydrostatic tests, followed by final inspection for mechanical tolerances. After phosphating, the rocket bodies are ready for assembly

CHEMISTRY OF 4140 STEEL

	WD 4140 Steel	TS 4140*	INT 4140*
Carbon	0.35-0.45	0.38-0.43	0.37-0.45
Molybdenum	0.15-0.25	0.08-0.15	0.08-0.15
Manganese	0.70-1.00	0.80-1.05	0.90-1.25
Silicon	0.20-0.35	0.20-0.35	0.20-0.35
Chromium	0.80-1.10	0.90-1.20	0.85-1.20

* It is planned to substitute steel of this chemistry.

Whenever the
Service is
TOUGH-

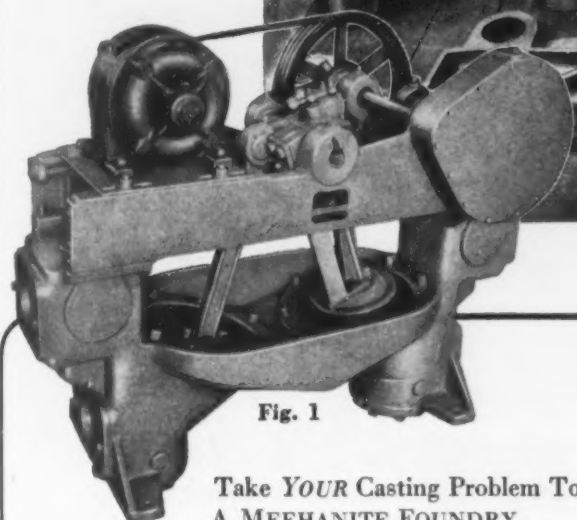


Fig. 1

Take *YOUR* Casting Problem To
A MEEHANITE FOUNDRY

American Brake Shoe Co.	Mahwah, New Jersey
The American Laundry Machinery Co.	Rochester, New York
Atlas Foundry Co.	Detroit, Michigan
Banner Iron Works	St. Louis, Missouri
Barnett Foundry & Machine Co.	Irrington, New Jersey
E. W. Bliss Co.	Hastings, Mich. and Canton, O.
Builders Iron Foundry	Providence, Rhode Island
Compton Foundry	Compton, Calif.
Continental Gin Co.	Birmingham, Alabama
Crawford & Doherty Foundry Co.	Portland, Oregon
The Cooper-Bessemer Corp.	Mt. Vernon, Ohio and Grove City, Pa.
Empire Pattern & Foundry Co.	Tulsa, Oklahoma
Farrel-Birmingham Co., Inc.	Ansonia, Connecticut
Florence Pipe Foundry & Machine Co.	Florence, New Jersey
Fulton Foundry & Machine Co., Inc.	Cleveland, Ohio
General Foundry & Manufacturing Co.	Flint, Michigan
Greenlee Foundry Co.	Chicago, Illinois
The Hamilton Foundry & Machine Co.	Hamilton, Ohio
Hardinge Company, Inc.	New York, New York
Hardinge Manufacturing Co.	York, Pennsylvania
Johnstone Foundries, Inc.	Grove City, Pennsylvania
Kanawha Manufacturing Co.	Charleston, West Virginia
Lincoln Foundry Corp.	Los Angeles, California
E. Long Ltd.	Orillia, Ontario
Otis Elevator Co., Ltd.	Hamilton, Ontario
The Henry Perkins Co.	Bridgewater, Massachusetts
Pahlman Foundry Co., Inc.	Buffalo, New York
Rosedale Foundry & Machine Co.	Pittsburgh, Pennsylvania
Ross-Meehan Foundries	Chattanooga, Tennessee
Shenango-Penn. Mold Co.	Dover, Ohio
Sonith Industries, Inc.	Indianapolis, Ind.
Standard Foundry Co.	Worcester, Massachusetts
The Stearns-Roger Manufacturing Co.	Denver, Colorado
Traylor Engineering & Mfg. Co.	Allentown, Pennsylvania
Valley Iron Works, Inc.	St. Paul, Minnesota
Warren Foundry & Pipe Corporation	Phillipsburg, New Jersey

"This advertisement sponsored by foundries listed above."

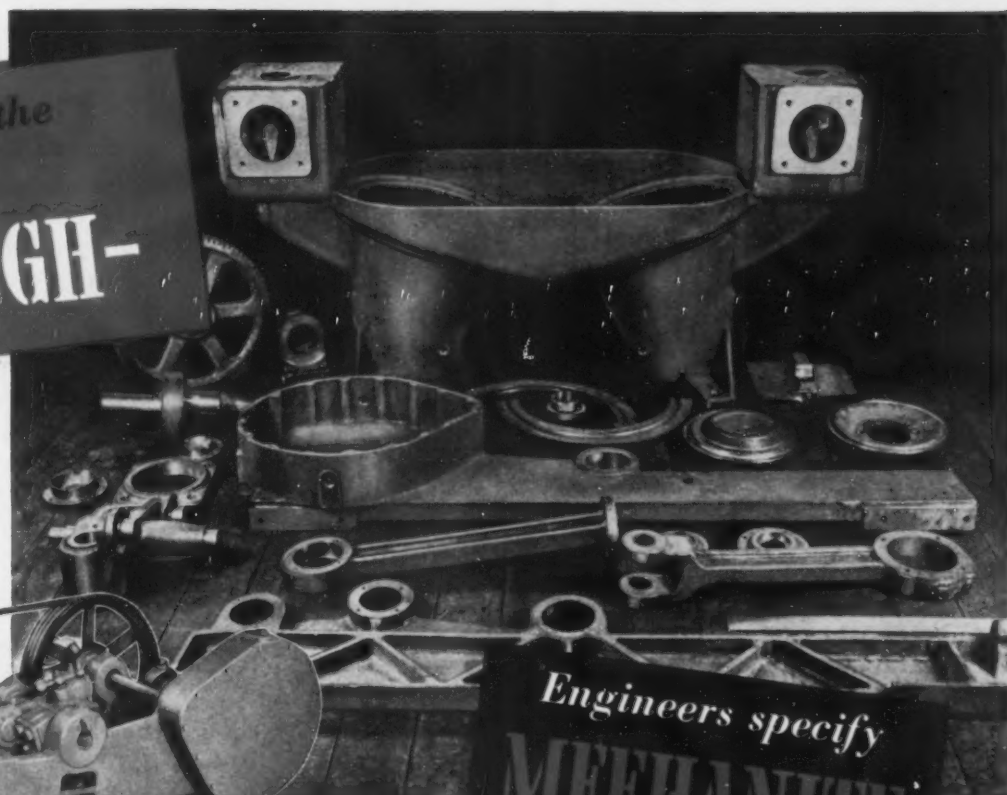


Fig. 2

Engineers specify
**MEEHANITE
CASTINGS!**

THE DORRCO V-type Diaphragm Pump (Fig. 1) manufactured by the Dorr Company, Stamford, Conn., was designed for handling sludges, pulps or slimes which contain sizable quantities of solid material. In keeping with their international reputation as builders of dependable and efficient equipment, designed to provide better service life under severe operating conditions, the Dorr Company regularly designs to and specifies Meehanite engineering characteristics.

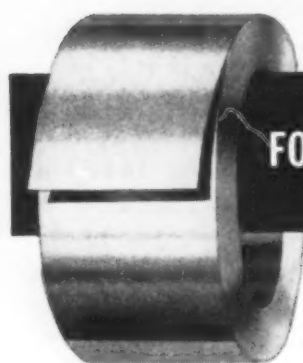
Note that the Meehanite castings (Fig. 2) used in this specific unit reveal the fact that every major component is a Meehanite casting. These castings provide the necessary strength, toughness and resistance to wear and corrosion demanded by the service functions of such a pump.

Write for our new 20-page Pump Bulletin No. 36 which gives complete details not only on pump applications but various specific property tests as applied to impact, erosion, corrosion and wear.

MEEHANITE

NEW ROCHELLE, N. Y.

typewriters tables & time-saving



FOLLANSBEE COLD ROLLED STRIP



is custom-made steel suitable for innumerable products. It offers many time-saving advantages, too. It's a productioneer's tool—providing a continuous supply of uniform steel from coils to your automatics, regardless of forming operations involved.

Follansbee Cold Rolled Strip in coils is available in tempers and finishes to meet most specifications. Take advantage of Follansbee's custom-service. It's tailored to *your* metal-working requirements. Call the Follansbee Steel Representative near by and he'll tell you all about it.

FOLLANSBEE STEEL CORPORATION

SEAMLESS TERNE
ROLL ROOFING •
POLISHED BLUE
SHEETS & COILS •
COLD ROLLED
STRIP



GENERAL OFFICES, PITTSBURGH 30, PA.
SALES OFFICES—NEW YORK, PHILADELPHIA,
ROCHESTER, CLEVELAND, DETROIT, MIL-
WAUKEE. **SALES AGENTS**—CHICAGO,
INDIANAPOLIS, KANSAS CITY, NASHVILLE,
LOS ANGELES, SAN FRANCISCO, SEATTLE,
TORONTO AND MONTREAL, CANADA.

MILLS—FOLLANSBEE, W. VA. **FOLLANSBEE METAL WAREHOUSES**
—PITTSBURGH, PA., ROCHESTER, N. Y., AND FAIRFIELD, CONN.

Free Literature

Continued

Metal cleaning

Six methods of metal cleaning are described in a new brochure "*Cleaners for Effective Metal Cleaning.*" Top quality plating, anodizing, painting or other protective coating applications require thorough cleaning of the metal used. Cleaners are listed for use with aluminum, brass, bronze, copper, lead-alloys, magnesium, steel, iron and zinc-base die castings. *Hanson - Van Winkle-Munning Co.*

For free copy insert No. 14 on postcard, p. 151.

Gear testing

Modern gear production methods require highly specialized and accurate gear measuring equipment to insure accuracy and durability. The new Maag gear testing machine performs a number of specialized measuring operations. Tooth profile, tooth alignment and helix angle, up to 65°, concentricity and surface finish of tooth flanks may be measured at one setting of the gear. *Maag Gear-Wheel Co., Ltd.*

For free copy insert No. 15 on postcard, p. 151.

Limit switches

Safer stopping and automatic reversal by impedance-electronic limit switches are featured in a new booklet "*Reversing Control for Planers.*" Destructive arc shield burning is eliminated, permitting fast operation at low upkeep cost. A separate voltage source permits positive stop on power failure. Switches operate silently through an air gap without impact or shock. *Electric Controller & Mfg. Co.*

For free copy insert No. 16 on postcard, p. 151.

Metal mouldings

A host of styles and varieties of metal mouldings are described and pictured in a new 20-p. catalog. Fabrication of strong, attractive trim for an endless number of applications has kept step with production hard goods. Mouldings add beauty and protection. Pyramid mouldings are the result of 20 years of specialized production. *Pyramid Mouldings, Inc.*

For free copy insert No. 17 on postcard, p. 151.

SHOP ERECTED

...to get your production going faster

Lectromelt Furnaces — even the BIG babies — are completely assembled and mechanically operated here on our erection floor at Pittsburgh. This means they go together faster in your plant and you get into production without loss of time.

Lectromelt considers the power supply and regulating apparatus as important as the furnace itself. They'll even help engineer your materials-handling equipment. Both are additional reasons why Lectromelt Furnaces get going on production faster and at lower cost.

Melting, refining, smelting and reduction have been carried on for many years efficiently and economically with Lectromelt Furnaces. Our engineers will help put them to work for you. For Bulletin No. 7 telling you more about these furnaces, write Pittsburgh Lectromelt Furnace Corporation, 327 32nd Street, Pittsburgh 30, Pa.

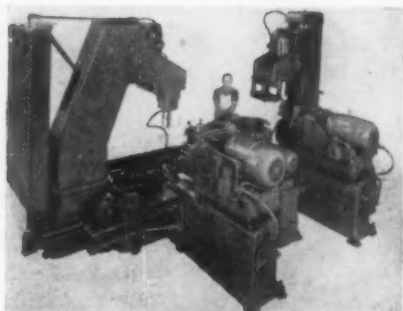
Manufactured in . . . CANADA: Lectromelt Furnaces of Canada, Ltd., Toronto 2 . . . ENGLAND: Birlec, Ltd., Birmingham . . . SWEDEN: Birlec, Elektkougvar A/B, Stockholm . . . AUSTRALIA: Birlec, Ltd., Sydney . . . FRANCE: Stein et Roubaix, Paris . . . BELGIUM: S. A. Belgo Stein et Roubaix, Brossoux-Liège . . . SPAIN: General Electrica Espanola, Bilbao . . . ITALY: Forni Stein, Genoa.

WHEN YOU MELT... *Lectromelt*



NEW equipment

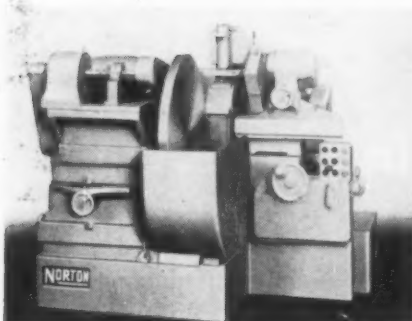
New and improved production ideas, equipment, services and methods described here offer production economies . . . fill in and mail postcard on page 151 or 152.



Special machine processes army tank supports

Five-way hydraulic-feed drilling machine with individual lead-screw tapping was built for processing suspension supports for army tanks. The holding fixture is mounted on a carriage, and is transferred manually from station to station as eleven drilling and chamfering operations and nine tapping opera-

tions are performed. At each station, the fixture is electrically interlocked with the machining cycle. Forward cycle of machine cannot be started if fixture is not properly positioned. Hydraulic and electrical installations conform with J.I.C. standards. *Buhr Machine Tool Co.* For more data insert No. 18 on postcard, p. 151.

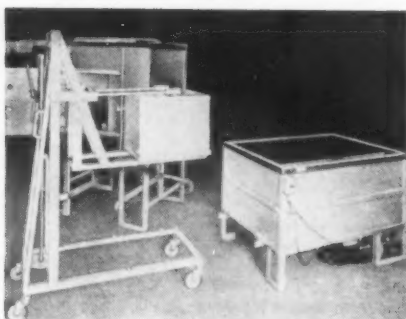


Compressor wheel grinder handles 42-in. work

Special features of a new grinding machine simplify grinding operations on jet engine compressor wheels or similar work. Workhead spindle is designed for convenient mounting of face plates, chucks, or other workholding fixtures. Workhead is mounted on a swivel table and has longitudinal and cross ad-

justments. Workhead table has longitudinal power traverse with automatic reversals. Automatic feed cycle, timer controlled, minimizes manual tasks in external grinding. Truing external grinding wheel is speeded by an automatic wheel guard truing device. *Norton Co.*

For more data insert No. 19 on postcard, p. 151.

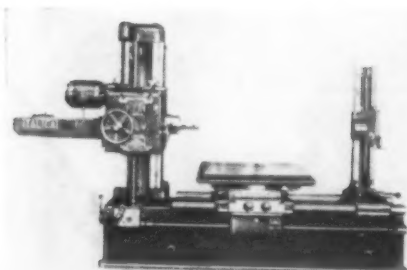


Cartridges used in heat treating process

Blanketing metals with hydrogen, nitrogen, carburizing or other atmospheres while they are being heat treated in the smaller shop type furnace employs a cartridge which contains the parts to be treated. A loader truck picks up a loaded cartridge at any point in the shop and deposits it in the furnace. The car-

tridge is then connected to a tank of the desired atmosphere and charged. Pressured, protective atmosphere is maintained within the cartridge during the heat treating cycle. When the cycle is completed the loader removes the cartridge load to quench the work in a Contro-Therm tank. *A. D. Alpine, Inc.*

For more data insert No. 20 on postcard, p. 151.



Precision boring machine has revolving table

On the Italica boring machine, manufactured by Rovai Jori, the head slides along a ground column that is rigidly bolted to the bed. Scale with vernier and lens measures its vertical travel. Speed changes are accomplished through honed alloy steel gears immersed in an oil bath.

Heavy steel table is designed for minimum deflection under heavy loads, has horizontal and longitudinal traverse, and revolves on the carriage about a large, graduated base. *British Industries Corp.*

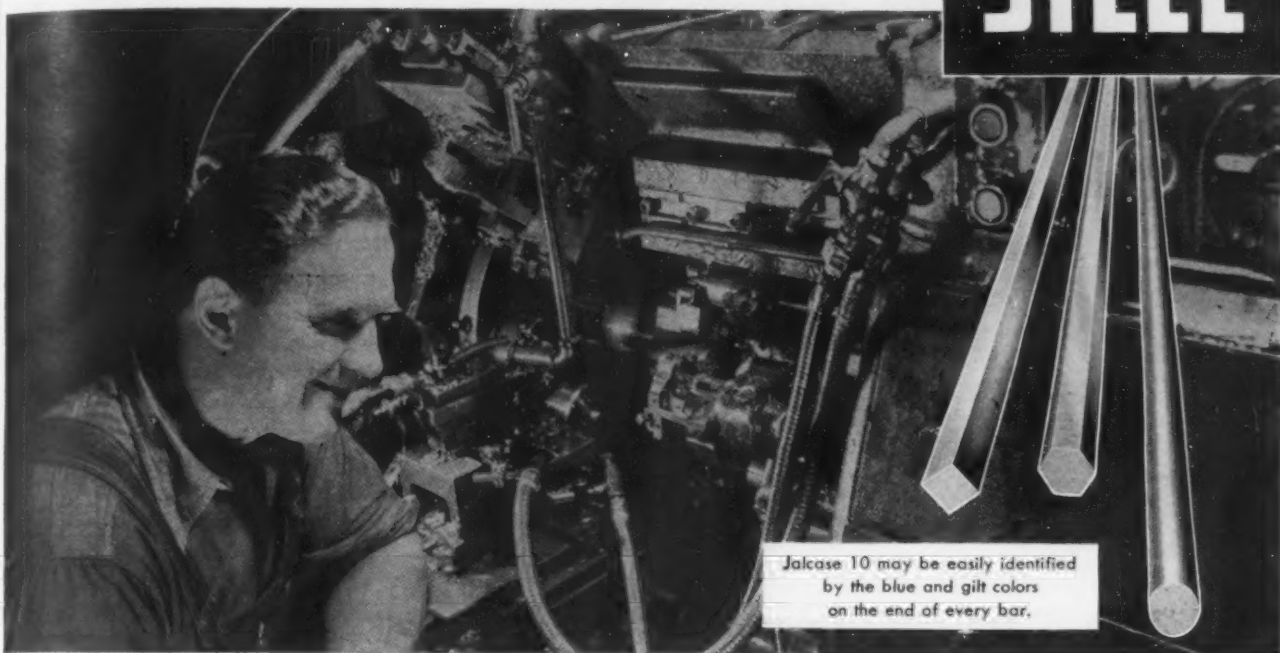
For more data insert No. 21 on postcard, p. 151.

Turn Page

JALCASE 10 HELPS YOU

... eliminate a production step
... machine better cold-finished parts

J&L STEEL



Check these advantages of JALCASE 10 that offer you faster, more economical operations ...

NO HEAT-TREATING OF FINISHED PARTS REQUIRED

Many times finished part specifications on a job call for a high degree of hardness, but not as high as that obtained through heat-treating the finished part. In these applications, parts manufacturers and machinists have found it profitable to use Jalcase 10 and eliminate heat-treating altogether.

MINIMUM DISTORTION

Although Jalcase 10 is a high-carbon steel, distortion is cut to a minimum through special treatment during the cold-finishing process. As a result, when mechanical properties must be as high as possible and distortion held to a minimum, Jalcase 10 fulfills these rigid requirements.



HIGH MECHANICAL PROPERTIES

Jalcase 10 (A.I.S.I. No. C-1144) has the following cold-finished properties:

Minimum Tensile Strength.....	115,000 lb/sq. in.
Minimum Yield Strength.....	100,000 lb/sq. in.
Elongation in 2 inches.....	7% (minimum)
Reduction of area.....	20 % (minimum)
Brinell Hardness Range.....	235—285

PLUS... all the other advantages Jalcase steels have over ordinary screw stock:

1. lower cost per unit produced
2. finer finish on completed pieces
3. longer machine-tool life
4. less screw-machine down-time

WANT MORE INFORMATION?

Send for our FREE booklet entitled "You Can Make Them Better with Cold-finished Jalcase." This illustrated booklet gives you complete technical information about *all ten* grades of Jalcase and how they can help you get better results in your machining operations. WRITE TODAY!

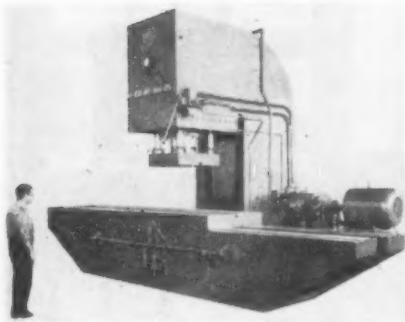


JONES & LAUGHLIN STEEL CORPORATION

403 JONES & LAUGHLIN BUILDING, PITTSBURGH, PENNSYLVANIA

April 3, 1952

157

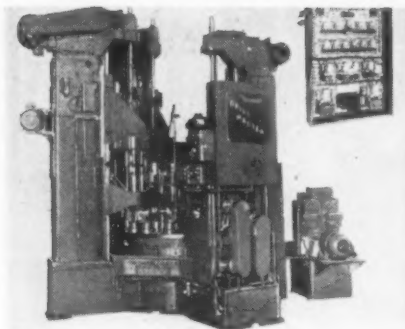


Features two-dimension positioning of work

A versatile hydraulic straightening press features fast two-dimension positioning of the work. Quick positioning is obtained by hydraulic systems which move the press bed from side-to-side and the plunger assembly from front-to-back at the touch of a lever. It allows a number of blows to be struck at differ-

ent places on a single piece without changing the setting on the press table. Speed of operation is further increased by a quick advance and return feature of the Hydro-Dynamic circuit. Actual straightening is done at slow speed. *E. W. Bliss Co.*

For more data insert No. 22 on postcard, p. 151.



Machine produces aluminum end frames

Aluminum end frames for automobile generators and starters can be produced at 360 per hr loading 3 pieces at each station of a new 5-column, 7-station hydraulic machine. Operation consists of rough and finish hollow milling, drilling, reaming, and tapping holes. The machine features automatic clamping and unclamping to all fixtures,

automatic indexing of tables, automatic air blow-out of chips from blind holes between each operation; pushbutton control with selector switch to each station and floor type coolant system. It has 9 motors ranging from $\frac{3}{4}$ to $7\frac{1}{2}$ hp, 13 limit switches, 18 control buttons. *Standard Machine & Tool Co., Ltd.*

For more data insert No. 23 on postcard, p. 151.

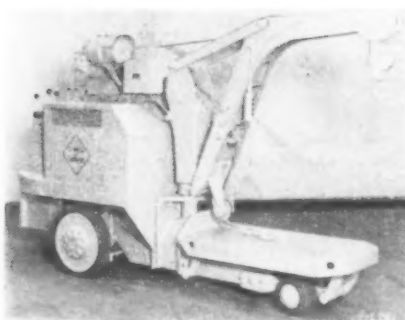


Condenser cleaner for small straight tubes

Suspension-type condenser cleaners are designed for cleaning small straight tubes and with proper selection of cleaning tools are equally efficient in removing either hard or soft deposits. In operation, they are supported from overhead by means of a trolley, rope-block or hanger. The cleaner motor has two ball type thrust bearings that ab-

sorb the push and pull forces imposed on the cleaner during operation. For soft, gummy deposits where strong flushing action is required, a drill tip and adapter are employed. For extremely hard deposits, a drill with sharp carbide edges brazed to the drill body is recommended. *Elliott Co.*

For more data insert No. 24 on postcard, p. 151.

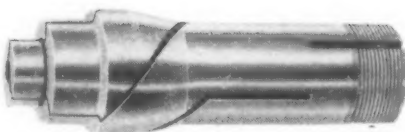


Platform truck and crane simplify maintenance

In addition to a standard 4000-lb capacity, self-loading platform to lift and transport skids, an industrial truck is equipped with a powered winch for pulling heavy loads on or off the platform. Boom swivels 180° , permits hoisting loads weighing 2000 lb max. Power is supplied to individual motors that power the

drive, platform lift, winch and hook by electric storage battery or gas-electric unit. Winch, platform and hook can be controlled from operator's position and the load end. Two wheel drive, four wheel steer are provided. *Elwell-Parker Electric Co.*

For more data insert No. 25 on postcard, p. 151.



Simple mandrel expands like a collet

Holding workpieces during machining operations can be simplified with the use of a new mandrel. Made in one piece, it is slotted to form three cantilever sections that deflect to engage the workpiece.

Each mandrel has one, two or three gripping diameters and is made in C-5 collet sizes, $\frac{7}{32}$ to $1\frac{1}{2}$ in. diam in $\frac{1}{32}$ -in. steps. *E. Westberg Co.*

For more data insert No. 26 on postcard, p. 151.

Turn Page

cast iron that **BENDS**
without **BREAKING**

DUCTALLOY

Ductile Cast Iron

NEW PHYSICAL PROPERTIES MAKE POSSIBLE IMPORTANT ECONOMIES IN MANY APPLICATIONS

DUCTALLOY is a promising new material with many attractive advantages. It is highly ductile and combines good strength and toughness with exceptional machinability and wear resistance. **DUCTALLOY** is stronger and far more shock resistant than gray irons, and stronger than carbon steel in yield strength. It casts like gray iron and shows to advantage over steel where soundness is a problem, especially in heavier sections and large castings.

DUCTALLOY has excellent impact resistance and in the annealed condition is superior to carbon steel in that respect. Its outstanding resistance to growth and oxidation at elevated temperatures makes it eminently suitable for heat resistant applications such as grate bars, furnace doors, soaking pits and similar high temperature uses.

DUCTALLOY can be cast in intricate shapes with fine surfaces, close tolerances and less machining stock than cast steel because of its high fluidity. It is particularly valuable for pressure castings...and **DUCTALLOY** can be welded to steel, to gray iron and to **DUCTALLOY**. Write for information about this economically important new material to:

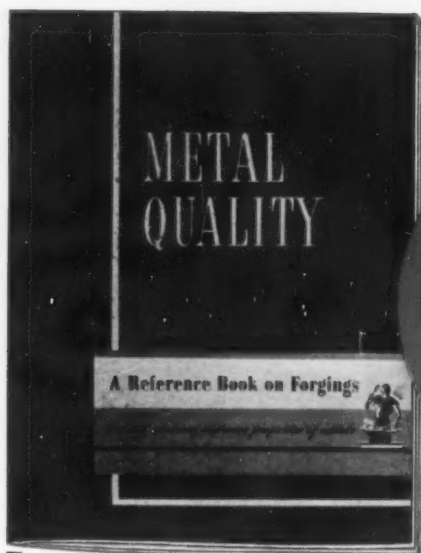
AMERICAN

Brake Shoe

COMPANY

BRAKE SHOE AND CASTINGS DIVISION

230 Park Avenue, New York 17, N. Y.



Engineering, production and economic advantages obtainable with forgings are presented in this Reference Book on forgings. Write for a copy.

Forgings fortify a mechanism with a factor of greater safety that is otherwise unobtainable... There is no substitute for the toughness and strength inherent in the compact, fiber-like flow line structure of closed die forgings. Consult a Forging Engineer about the correct combination of mechanical properties which forgings can provide for your product.

DROP FORGING ASSOCIATION

605 HANNA BLDG. • CLEVELAND 15, OHIO

Please send 60-page booklet entitled "Metal Quality — How Hot Working Improves Properties of Metal", 1949 Edition.

Name

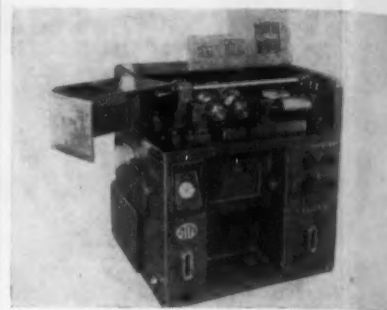
Position

Company

Address

New Equipment

Continued



Thread rolling machine

Fast, efficient mass production of class 3 threads by unskilled labor is claimed for a thread rolling machine built in Japan. Finished surface of thread is mirror-smooth and said to possess accuracy of ground threads. The Tsugami machine reportedly cuts processing time, saves material and increases strength of thread by 20 to 30 pct. Diameter of thread rolled on this machine ranges from 3/16 to 1 3/16 in. with length to 2 1/4 in. *Bell Equipment Co.* For more data insert No. 27 on postcard, p. 151.

Welder control

Design simplification of an electronic non-synchronous resistance welder control provides easier installation, less maintenance, and smaller size. Simplified NEMA 3B weld and sequence timing circuit requires only 4 tubes plus valve relay and firing relay. Consistency and timing accuracy are maintained. All tube circuits are fail-safe. Enclosure design permits wall or side-of-machine mounting. *Square D Co.*

For more data insert No. 28 on postcard, p. 151.

Hard-facing rods

Hard-facing electrodes and acetylene welding rods, recently added to the Murex line, include rods for extreme abrasion, medium and heavy impact, severe shock, high red hardness, and extreme heat and corrosion resistance. A new Murex tungsten-carbide rod provides an exceptionally slag-free deposit, allowing all residue to be readily cleaned away by wire brushing. *Metal & Thermit Corp.*

For more data insert No. 29 on postcard, p. 151.

Turn Page



"NO SUBSTITUTES FOR US! WE'LL
USE THIS TILL WE CAN GET OUR
READING COPPER TUBING."

For a dependable source of supply . . . specify
Reading brass and copper tubing . . . processed
from the basic metal to the finished tubing in
one of America's finest completely integrated mills.

READING TUBE CORPORATION
Producers of Reading Lectroneal Copper Tubing
and Reading Brass Tubing

OFFICES AND EASTERN DISTRIBUTION DEPOT:
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featuring
DUALOC*



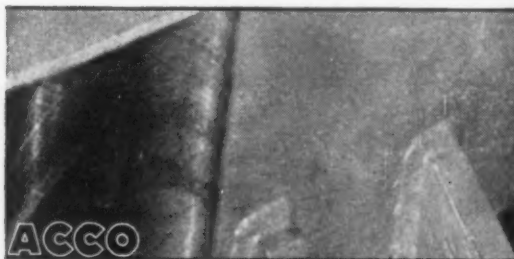
BIG... or small

● It makes no difference if your load is big or small, light or heavy, rough or smooth. There is an ACCO Registered Wire Rope Sling for the job.

You can get standard Strand-Laid and Cable-Laid Slings from local distributors. Many others are carried in factory stock. The big ones and very special ones we design and make specially for you.

Every ACCO Registered Wire Rope Sling is proof-tested, identified with a metal tag, and warranted as to rated capacity. We eliminate the guesswork. See your distributor today or write for information.

**Trade Mark Registered*



WIRE ROPE SLING DEPARTMENT
AMERICAN CHAIN & CABLE



Wilkes-Barre, Pa., Chicago, Denver, Houston, Los Angeles,
New York, Odessa, Tex., Philadelphia, Pittsburgh,
San Francisco, Bridgeport, Conn.

Registered
Wire Rope
Slings

New Equipment

Continued



Mobile crane trucks

New mobile crane trucks are adapted to handling heavy castings, machinery, bar stock, sheet metal packs and irregular-shaped materials in and out of flat, gondola or box cars. With their 19-ft telescoping booms, the units can be used for locomotive stripping in the repair shop, erection jobs, warehouse, dock and general millwright work. Combining travel, hoist, boom and slew motions, they supplant overhead crane equipment. Capacities available are 6000 and 10,000 lb. *Baker-Raulang Co.*

For more data insert No. 30 on postcard, p. 151.

Heat-repelling glove

Constructed of a sheet of aluminum-coated fabric between two layers of heavy asbestos, new work gloves are jersey lined, providing maximum heat resistance, without causing skin irritation. Tests have proved the mitt reflects up to 90 pct of radiated heat, and offers high abrasive resistance because the asbestos is specially treated. Glove can be worn on either hand. *Milburn Co.*

For more data insert No. 31 on postcard, p. 151.

Speed reducer

A new shaft-mounted speed reducer is designed to handle loads up to 43 hp and speeds from 12 to 110 rpm. This No. 7 reducer has a load rating 59 pct higher than the next smaller size, No. 6. A turnbuckle enables fast, easy adjustment of belt tension. Installation is simple; no foundation, no flexible couplings are needed. *Dodge Mfg. Corp.*

For more data insert No. 32 on postcard, p. 151.

Custom-made gaskets

A complete design and fabricating service makes gaskets, packings, washers, spacers, seals, shims and bushings from newest industrial materials such as Teflon, Kel-F, Neoprene, silicon rubber, phenolics and other plastics. Improved service is claimed for custom-made units. *Auburn Mfg. Co.*

For more data insert No. 33 on postcard, p. 151.

New carbide

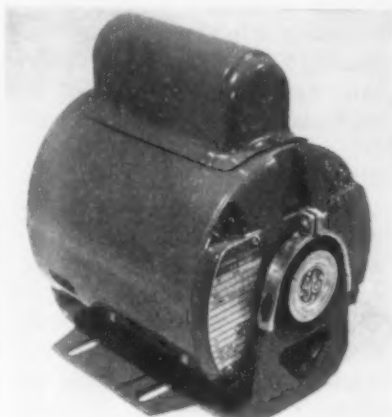
New grade of cutting carbide known as Grade S-6 is said to be efficient where nature of the job requires slow speeds. S-6 can be used at high machining speeds, but is especially suitable for use on old or slow speed machines. It is good for interrupted cuts; removes stock fast because of the heavy feeds permissible. *Greenleaf Corp.*

For more data insert No. 34 on postcard, p. 151.

FHP motors

A line of fractional horsepower motors embodies a new concept of motor design and manufacture. The Form G motor weighs 51 pct less per horsepower than the models it replaces and is smaller in size. Versatility of application has broadened and its appearance modernized. Motors are available in open drip-proof and totally enclosed fan-cooled models. Among its design "firsts" are new bearings, lubrication system, insulation, ventilation, mountings, windings, end shields, terminal board and leads. *General Electric Co.*

For more data insert No. 35 on postcard, p. 151.



Turn Page



NEW!



Lock 'em—and Leave 'em

● If you have a problem lifting, moving or containing bundles of bars, rods, or pipes—forget it. Get some of the new AMERICAN Bundling Chains with automatic locks. They're easy to hook up, and once you lock them, they stay locked. Yet you can unlock them with a flip of the fork. Satisfied users tell us they have made possible real savings in handling costs.

Write today for information on Bundle Locks or the 1001 other items in the complete AMERICAN Chain line.

(Patent Pending)



ACCO



AMERICAN CHAIN DIVISION
AMERICAN CHAIN & CABLE

York, Pa., Atlanta, Chicago, Denver, Detroit, Los Angeles,
New York, Philadelphia, Pittsburgh, Portland,
San Francisco, Bridgeport, Conn.

American
Chain

There's an
idea here for you!



get your product out of a packaging rut

Motorists buy Claw Tire Chains . . . *because of the package.* It's a practical package—one that not only makes the product more attractive, but easier to use, and simple to store in the luggage compartment of the car when not in use. Dealers like the package too; outstanding in display, requiring no re-packing or wrapping, and stimulating the buyer to take his purchase with him, it simplifies the selling job all around.

An adaptation of this idea may be the merchandising boost you want for your product. The H & D Package Laboratory is ready to help you in *any* packaging problem . . . to give packaging that will help increase sales, reduce costs, provide better product protection. For free booklet, "Pack To Attract," write Hinde & Dauch, 5218 Decatur St., Sandusky, Ohio.



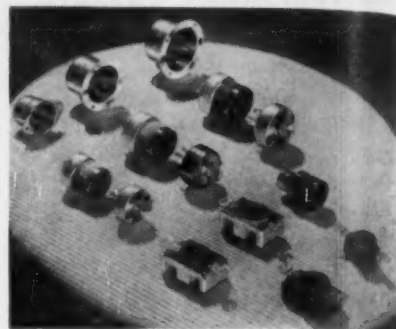
HINDE & DAUCH
Authority on Packaging



Akron, Baltimore, Battle Creek, Mich., Bloomington, Ill., Buffalo, Chicago, Cincinnati, Cleveland, Columbus, Denver, Detroit, Fairfield, Conn., Findlay, Ohio, Gloucester City, N. J., Greensboro, N. C., Hoboken, Indianapolis, Jamestown, N. Y., Kansas City, Lehigh, N. C., Minneapolis, Omaha, Plymouth, Ind., Reading, Pa., Richmond, Va., Roanoke, Va., Rochester, Sandusky, Ohio, Shrewsbury, Mass., St. Louis, Toledo, Watertown, Mass.

New Equipment

Continued



Wiring device

Hart-Lock is a current carrying device that locks in position and prevents accidental disconnects. It is installed like ordinary connecting devices but assures a positive lock by a simple twist of the cap in the connector body or receptacle. No accidental interruption of electrical service can happen. *Arrow-Hart & Hegeman Electric Co.*

For more data insert No. 36 on postcard, p. 151.

Cup expanders

New line of brass cup expanders, designated ES-11, has been developed to eliminate leakage in hydraulic and pneumatic cylinders. Expanders insure positive sealing action of cup packings at all times by exerting controlled pressure on the packing lip so that it maintains constant contact with the cylinder wall. Sizes range from 1 1/4 to 2 7/8 in. packing diameters. *HPL Mfg. Co.*

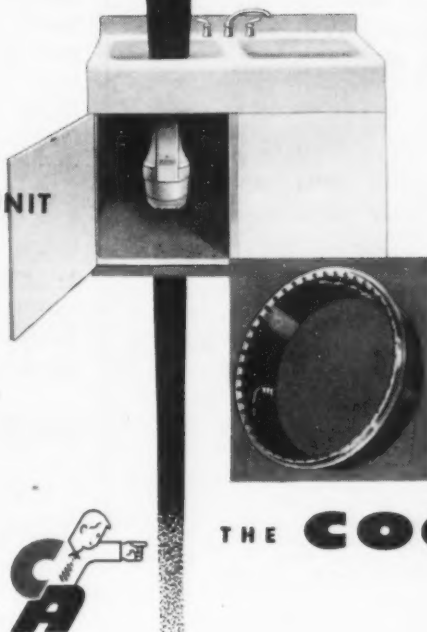
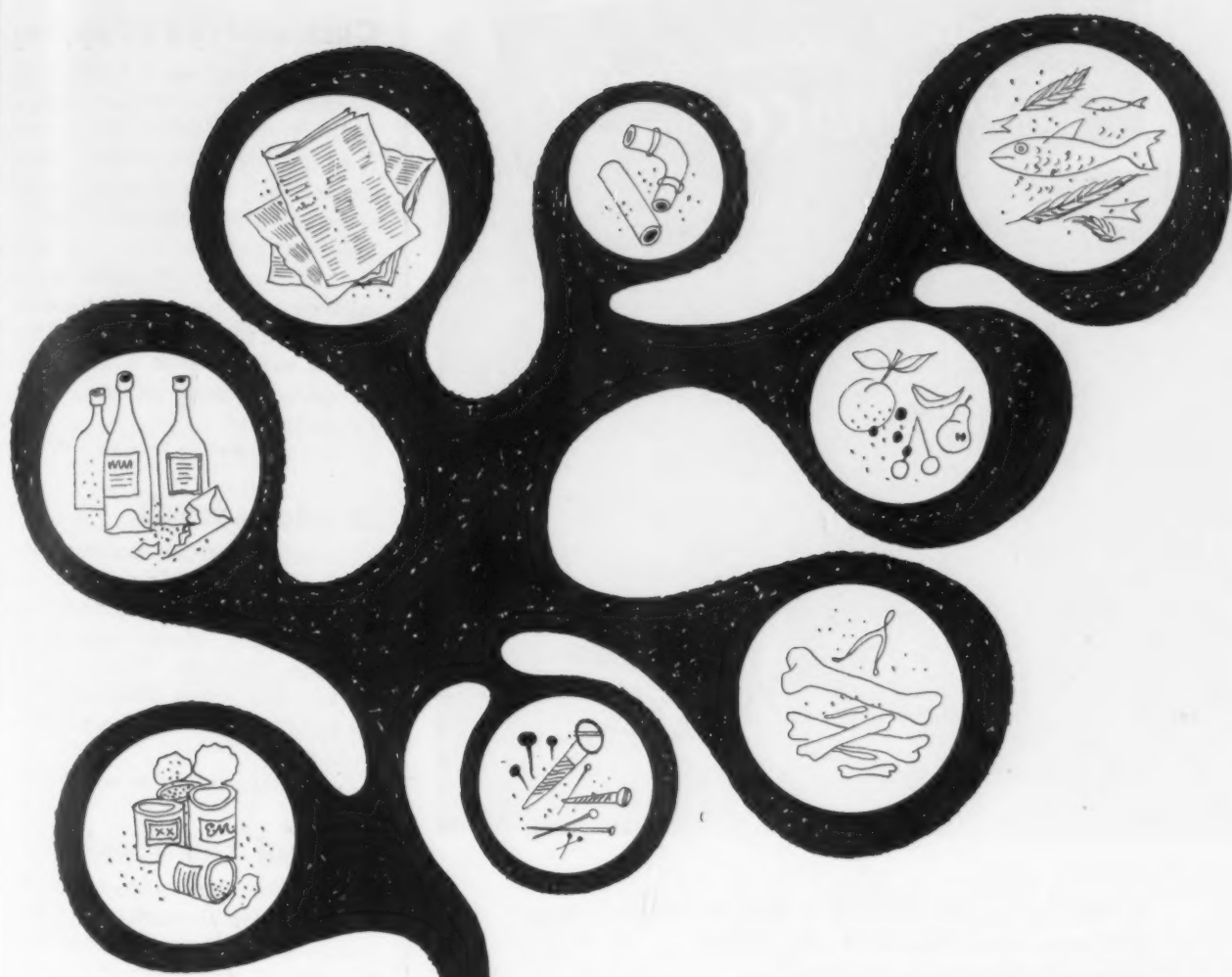
For more data insert No. 37 on postcard, p. 151.

Crane cab cooler

With a new split-type crane cab cooler of 3 hp size, a temperature of 80° to 85°F, can be maintained within a crane cab when the surrounding ambient temperatures reach 130°F. The unit, which supplies continuous ventilation, is equipped with electric strip heaters for winter heating, dust and dirt filters and activated carbon canisters for fume and odor removal. Small evaporator section is installed inside the cab; the condenser section may be located in any convenient place on the crane. Operation and control for summer and winter temperatures is fully automatic. *Dravo Corp.*

For more data insert No. 38 on postcard, p. 151.

Turn Page



G·E DISPOSALL UNIT



*Reg. Trade-mark of General Electric Company.

Down the drain went more than 6300 pounds of miscellaneous waste! During a year-long performance test at Chicago's Plumbing Testing Laboratory, General Electric's famous Disposall* swallowed everything in the kitchen sink—from fish heads to bottles, from newspapers to granite, from fruit pits to galvanized iron pipe fittings. Although designed only to handle fresh food waste, the Disposall continued to operate smoothly and efficiently, despite this extraordinary diet.

Much of the credit for this performance belongs to the rugged stainless steel shredding element that accomplishes the vital "chewing". This corrosion and abrasion resistant complex alloy casting—produced by Cooper Alloy to meet General Electric's rigid specifications for dimensional accuracy, soundness and uniform quality—is another example of Cooper Alloy's ability to fulfill the difficult requirements imposed by engineering imagination.

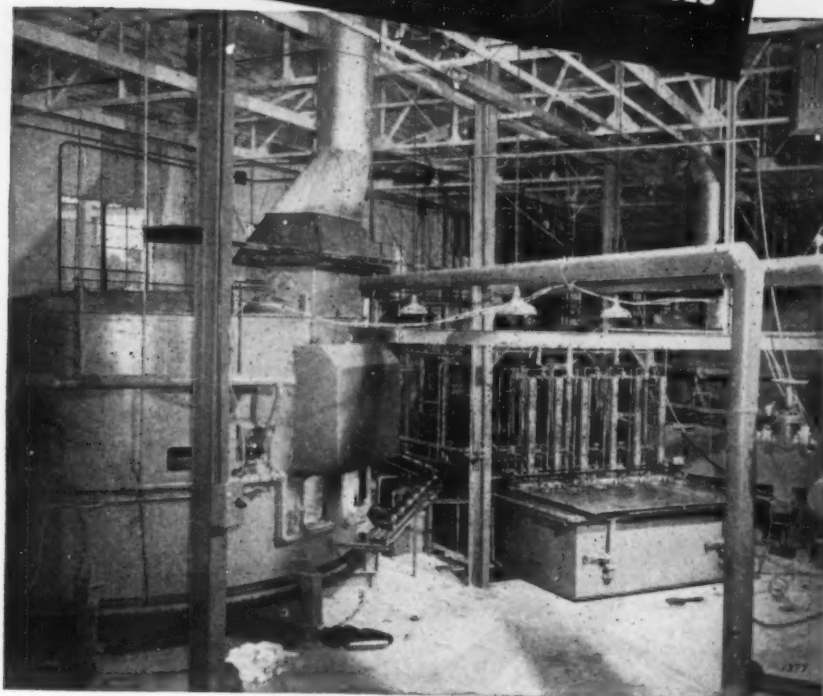
WITH STAINLESS STEEL CASTINGS BY

THE COOPER ALLOY

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Leading Producers of Stainless Steel Valves, Fittings and Castings

Accurate, Uniform Heating WITH GASMACO FURNACES



In the production of 105 mm shells, accuracy and uniformity of heating are of vital importance. To obtain necessary tolerance, without the use of valuable alloys, two Gasmaco furnaces are employed — one for hardening and the other for drawing. A quench tank is located between the furnaces on this operation, which requires the services of only two men.

The shells are hardened, quenched and drawn in a vertical position to ensure positive uniformity and accuracy. The result is better quality, faster production and lower cost.

For your heat treating problems and other furnace requirements, investigate the many advantages of Gasmaco. Call or write today.

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New Equipment

Continued

Cushion-type wrapping

Known as Cadwrap, a cushion-type wrapping for protecting large or oddly formed parts or products from in-transit and storage damage consists of sheets of heavy, tough, crepe paper between which are fastened cushioning layers of excelsior. The integral wrapping is then tailored to fit each part or product and held in place by Cadclips. These permit easy nesting and handling of oddly formed units. *Cadillac Products, Inc.*

For more data insert No. 39 on postcard, p. 151.

Welder's truck

New welder's truck accommodates one gas and one air cylinder, cradling each cylinder in its individual niche. Safety chain anchors the cylinders securely. Tool box for torches, tips, etc. is located between the handles for instant use. *Palmer-Shile Co.*

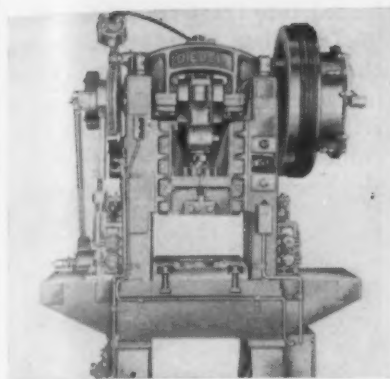
For more data insert No. 40 on postcard, p. 151.

Optical comparator

Large 16-in. diam image screen and plain horizontal work stage platform are new features of the Olympic optical comparator. A super-light condenser lens unit is exhaust power cooled and the light source may be used with color filters to vary the intensity and shading of light on the screen. Ciptar objective lens elements provide maximum light, large objective areas and sharp definition at all powers with the advantage of an upright image. Magnifications of 10X, 20X, 31.25X, 50X, 62.50X and 100X are obtainable as standard equipment. *Portman Instrument Co.*

For more data insert No. 41 on postcard, p. 151.





Automatic press

Designed for accuracy of alignment and speed in operation in precision stamping, a 40-ton Di-Matic produces intricate piece parts from complicated progressive dies. This safe, speedy model has four main crankshaft bronze bearings, assuring longer press life. Di-Matic features include an air operated and electrically controlled friction clutch and brake; air ejector and cam; metered lubricating system; cylindrical slide 16 in. diam guided by adjustable retainers with 380 sq in. of contact area. Provision is made in electrical control circuit for use of safety shut-off device, giving maximum protection for press and die. *Di-Machine Corp.*

For more data insert No. 42 on postcard, p. 151.

Dog and driver

Accurate spacing on taper work and spiral cutting can be assured with a milling machine dog and driver. Action of a hardened ball, sliding on a hardened stud between ground jaws, acts as a universal ball and socket joint. Work is never cramped or sprung since the movable parts of the jaw provide contact only, without torsional strain. Sizes are $\frac{1}{4}$ to 2 in. capacity and $\frac{3}{4}$ to $2\frac{3}{8}$ in. *Ready Tool Co.*

For more data insert No. 43 on postcard, p. 151.

Cold stripper

Stripper N is a new development for cold stripping various synthetic coatings from aluminum and its alloys. The most tenacious coatings are said to be easily removed without attack to the basic aluminum metals. *Silver Star Chemical Corp.*

For more data insert No. 44 on postcard, p. 151.



Ford knew something was in the air!

WHEN FORD pried the lid off this box, a revolutionary new way to pack auto parts came to light. Custom was to spray bare metal surfaces with a preservative coating. Then, before parts were usable, they had to have a "hot bath." However, after months of open storage with only Angier VPI* Wrap to line this box, the uncoated parts came out shiny and clean. "No evidence of rust" said Ford's Export Division. Because VPI takes the rust-making power out of air and moisture, you know when this invisible vapor is in the air.

NOW EIGHT BIG NAMES IN THE AUTOMOBILE WORLD are saving priceless man-hours with Angier VPI Wrap. No messy coatings to apply means no "cleaning" when parts are unpacked. Now work areas are

clean . . . SAFER! And because VPI requires no special equipment, valuable floor space is being released for production needs. Learn how this proven vapor method of rust prevention can benefit you. Write: Angier Corporation, Framingham 10 Mass.



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Sign below; attach to your letterhead

*Reg. U. S. Pat. Off. Vapor rust preventive

Alloy Trouble?

If you have missed the special Iron Age Series of five articles on boron steel which appeared last July and August you may want to order a reprint.

A 30-page reprint booklet covers the following:

1. Recommended alternates for standard grades.
2. Advantages and limitations of boron steels.
3. Hardenability charts.
4. Case studies of boron steel use in plants making gears ... pinions ... springs ... bolts ... axles.

A limited quantity of reprints is still available.

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Technical Briefs

Machining Nylon:

Sewing machine parts are molded and broached in fast operation.

Nylon is finding increasing use for cams and non-continuous bearings in light machinery since it operates satisfactorily over long periods without lubrication. To date little information has been available on machining parts from solid Nylon.

Nylon has several characteristics which make it difficult to machine. Since the material is quite flexible, care must be taken not to distort the parts either in clamping or through undue tool pressure.

Tool Wear — Like many other plastics, the material is also quite abrasive, creating a tool wear problem. Having a low melting point, it is necessary to avoid overheating the part in machining.

Machining is performed on a few Nylon parts used in sewing machines produced by New Process Gear Co., Syracuse, N. Y. An example is a stitch control cam.



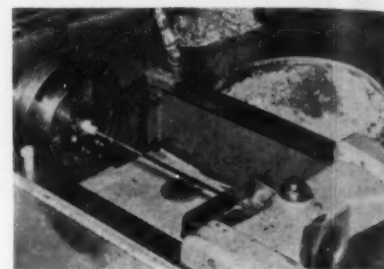
NYLON ECCENTRIC stitch control cam is shown before machining, left, and after machining, right, with mating steel part. Through holes with keys are broached.

Molded and Machined—The part is plastic molded, but close tolerance requires further machining. The operation was difficult to tool.

When gaging the part after broaching, it must be supported endwise. Any pressure on the side-walls would cause sufficient deflection to prevent entry of the 'go' gage. Since the material is fibrous and spongy, the broach tends to drift.

Progressive Broach Used — In broaching the part, the cam is

loaded into the locating fixture on the face plate of the broaching machine. The fixture has two adjusting screws for moving the cam in relation to the keyway during machine setup.

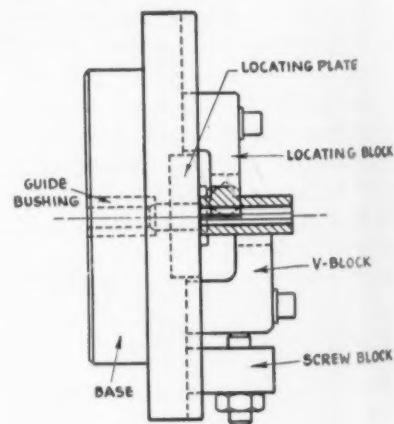


CLOSEUP of broaching operation shows Nylon stitch control cam being broached.

A progressive broach designed by Colonial Broach Co., Detroit, is used together with a broach follower to guide broach and avoid drift. The first 11 teeth on the broach rough the hole, while the next 18 teeth rough the keyway. The last few teeth finish the keyway and size the hole. About 0.010 in. of stock is removed per side. Limit on the ID is 0.002 in. while the keyway must be central with the bore within + 0.001 in.

Soapy Water—Broaching speed is 18 ft per min. Soapy water is used as a coolant not only for broaching, but also for turning the ID which is done with high speed steel tools on a Lo-Swing lathe.

Life of broaches per grind is 2000 to 2500 pieces, with an output of 144 pieces per hour.



SIDE VIEW
IN SIDE VIEW of broaching fixture note bushing that guides broach after it has passed through work.

Turn to Page 171

Technical Briefs

Powder Metallurgy:

Progress being made toward standardization of terms and data.

Development of standard nomenclature and data for use in the rapidly expanding powder metallurgy industry is making progress under direction of subcommittees of the American Society for Testing Materials.

Plans have been formulated for collection of data on physical and mechanical properties of sinterings, a term suggested for use as parallel to castings and forgings, made to ASTM Tentative B 222 covering structural parts.

Powder Analysis—The Subcommittee on Powders is submitting to letter ballot four methods for chemical analysis of powders and one method for the determination of subsieve size distribution.

Efforts will be next directed toward standardization of a compressibility test. A recommended size list for self-lubricating bearings is in preparation. Standardized specifications for structural parts from brass, copper-impregnated iron, and for a filter material are being formulated. The brass structural parts specifications is to be submitted to a second letter ballot shortly.

Porosity—A method for determination of the amount and size of porosity in cemented carbide will be submitted and several other test methods for cemented carbides will be standardized.



STEEL MATTING used on emergency airstrips has solved a materials handling problem at American Cyanamid's Willow Island, W. Va., plant. Lacking a concrete flooring in one building, fork trucks bogged down. Steel airfield mats provided the answer.

SHEET METAL FABRICATION by KIRK AND BLUM

Contract Manufacturing Facilities

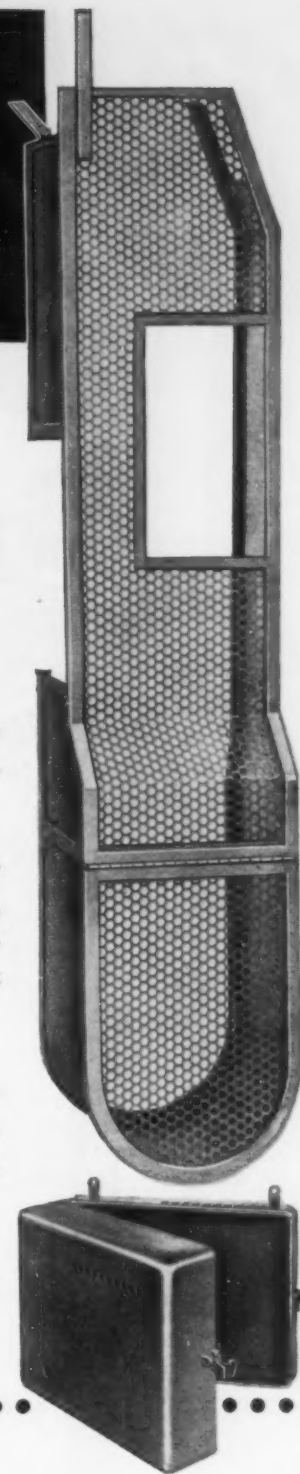
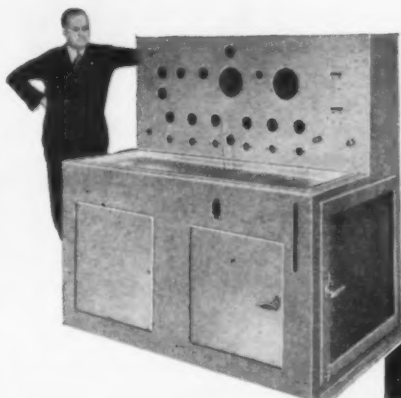
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Technical Briefs

Powder Iron Cores:

Production of electrical components boosted with new press.

Production of powder iron cores and other electrical components has been raised as much as 800 pct at Lenkurt Mfg. Co., with use of a special type press.

Because carrier channels are often operated in tandem where noise and distortion would be cumulative, operating standards are exacting. To meet these standards, Lenkurt makes many of its own components.

Powdered Iron — One class of component to which this applies includes powdered iron cores on which coils, inductors, transformers, and similar products are wound. These cores take the form of toroids, cylindrical slugs, hollow cups and cylindrical pots.

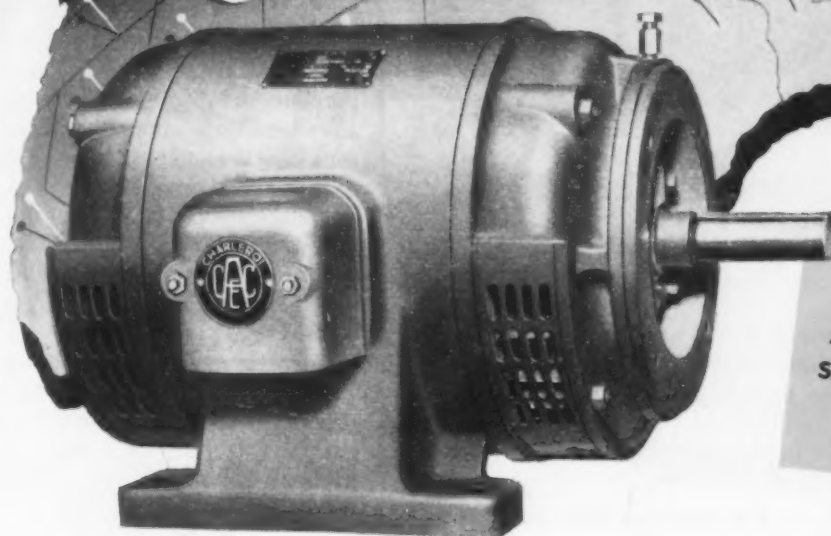
The single punch press, a Stokes R-4 Eccentric-Cam, applies pressure from above and below simultaneously. This gives high, uniform density. An automatic excess pressure release gives protection against damage to punches and dies. This prevents overloads and jamming on centers and also acts as a pressure equalizer to assure uniform density in the materials compressed.



"It's amazing the way he gets into the spirit of things."

Turn to Page 174

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BUSHINGS MUST MEET 3 RIGID NORTON SPECIFICATIONS

These Worcester Stamped Metal bushings are precision made to the following specifications, so that NORTON fast-cutting abrasive saws will seat properly on the arbor:

1. The drawn center hole in the stamping must be held to .002" tolerance in diameter.
2. The drawn center hole in the stamping must be concentric to the O.D.
3. The stamping must be absolutely flat, as the least tendency to "dish" will allow abrasive grains to work under the part and wear the arbor.

Just as thousands of these bushings are molded into NORTON cut-off wheels to satisfactory specifications for use all over the world . . . so are many other important Worcester Stamped Metal component parts produced to make a BIG difference in accurate end use.

Are you seeking a stamping source where you can depend on UNIFORM PRODUCTION?



Send samples and blueprints for quotations TODAY!

WORCESTER STAMPED METAL *Company*

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SPECIALISTS IN SKILLED STAMPING SERVICE

Technical Briefs

Surface Finish:

Scratches 0.000001 in. can be measured with simple gage.

An instrument which can detect scratches as small as one millionth of an inch, was presented recently before the American Society of Tool Engineers by General Motors Research Laboratories.

Designed to aid manufacture of both defense and civilian products, the device can be used in machine shops and factories to insure accuracy of highly finished surfaces of machined parts.

Easy to Handle — The simple, portable instrument can be plugged into an electrical outlet anywhere in a shop or factory. It records the degree of surface roughness of any part, such as an automotive piston or gear tooth, with a machined, ground, honed or lapped surface. The instrument measures 8 x 10 in. and stands only 8 in. high.

In use a pickup with a diamond stylus is moved over the surface of the part. The stylus is fitted to the electronic pickup in a case about the size of the cap of an average fountain pen.

Highly Sensitive — The Surface Gage has a high sensitivity transducer, a device that transforms



ROUGHNESS of precision parts such as this valve stem can be measured on down to 1 microinch on instrument developed by General Motors Research Laboratories.

Turn to Page 176

and **SAVED**
\$50⁰⁰-a TON...

...on this

Winch Shaft with -

GROUND and POLISHED **STRESSPROOF**®

The cable drum shaft of this Army truck winch was formerly made from 4140 alloy steel—cold-drawn, heat-treated, stress-relieved, ground, and polished. It was difficult to machine, and expensive. Several years ago this alloy bar was replaced with Ground and Polished **STRESSPROOF** at a considerable saving. Steel costs were *substantially* lowered—machining time was reduced. As a result, the over-all savings amounted to \$50.00 for every ton of steel used.

This is typical of the sensational savings made possible with Ground and Polished **STRESSPROOF**—the finest ground bar steel produced. This bar eliminates many costly manufacturing operations because of its unique combination of five important qualities in the bar: High Strength... Excellent Wearability... Minimum Warpage... Accurate, Polished Surface... and Machinability fully 50% faster than heat-treated alloys of the same hardness!

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STRESSPROOF

IS PLAYING A VITAL ROLE
 IN NATIONAL DEFENSE!

A very large proportion of **STRESSPROOF** production, today, is going into defense jobs. However, sample bars are available for testing purposes.

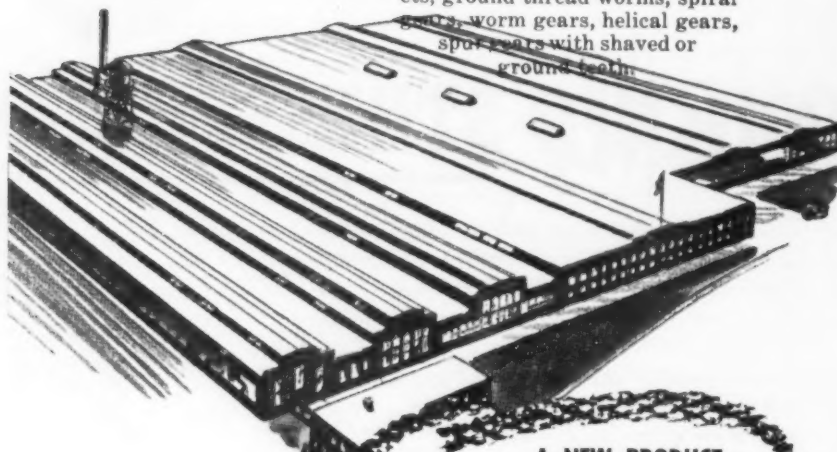


Among the consumers of custom-made **GEARS...**

*Precision
& Perkins*
are accepted
as synonyms

Equipment and facilities, coupled with the individual skills of New England craftsmen, enable this gear engineering organization to produce any type of gear in any quantity, and any material — metallic or non-metallic to your specifications. *Have us quote on your requirements!*

PERKINS MAKES: bevel gears, ratchets, ground thread worms, spiral gears, worm gears, helical gears, spur gears with shaved or ground teeth.



A NEW PRODUCT— the PERKINS precision SPRING COILER

This patented coiler turns out precision springs — any type, shape, size from wire sizes .005 to .125. Complete data and prices upon request.

PERKINS
MACHINE & GEAR co.
West Springfield, Massachusetts

—Technical Briefs—

motion into electrical voltage. When the diamond stylus moves over the "peaks and valleys" of a machined surface, the microscopic up-and-down motion is transformed into electrical signals which are recorded on a meter dial.

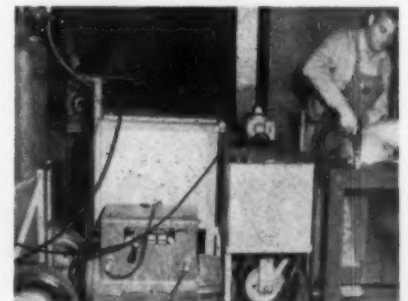
By reading the meter, the user can tell instantly whether the roughness value meets the specification of a part being machined.

Spotwelding:

Mobile spotwelding gun in use at Ryan is lightweight, compact.

A mobile spotwelding machine designed and built at Ryan Aeronautical Co., is being used to spot-weld exhaust hoods and machined rings at considerable savings in production time.

Plant engineers have harnessed the Linde Heliarc spot welding gun to a mobile unit which can be rolled to any production point and placed in operation in a few minutes.



MOBILE SPOTWELDING unit designed and built at Ryan Aeronautical Co. permits welding of heavy, irregular sections which cannot be easily handled.

A lightweight pistol-grip welding gun is used. The unit can be used for spot welding sheet metal and machined members in assembly jigs which are accessible from only one side. This permits spotwelding large or irregularly-shaped assemblies which would not be accessible to fixed electrodes.

Automatic Operation—The new machine incorporates a timing control, dc generator, argon gas supply and 40-gal water tank and

Technical Briefs

pump. Operation of the equipment is completely automatic.

In operation, argon gas flows through the cable to the gun and out the barrel, blanketing the weld zone with a protective gas envelope. A dc current, with a superimposed high frequency ac current, is fed to the gun's single tungsten electrode.

Water Cooled — The arc strikes for an interval sufficient to cause the metals to heat and flow together. At its termination, the argon gas continues to flow for a few seconds to protect the electrode against oxidation while still hot. Cooling is provided by water which is circulated through the gun by an electric-driven pump from a 40-gal supply.

Heat Transfer Unit Saves Steel

A new and unusual heat transfer unit may open the way for considerable savings in steel. The unit is reported to have more than double the Btu capacity per sq ft area of pipe coil.

Heating solution in the Platecoil flows in channels formed by joining two embossed metal surface



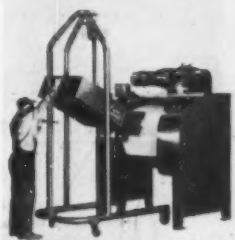
HEAT TRANSFER unit may be installed in typical industrial tank. High Btu capacity and large savings in materials and weight are possible.

plates. A 22 x 19 in. unit weighing only 95 lb has the same heating capacity as a 2 in. pipe coil weighing 239 lb.

Construction of the unit provides strength and rigidity permitting use where conventional pipe coils are not adaptable. Typical uses are in quench, pickling and degreasing tanks.

Turn to Page 178

FREE!



Supersheen Model DB-200. An example of Supersheen superiority. This advanced design barrel handles micro-finishing of small precision parts with same ease as fast cutting down of larger castings, forgings, etc.

Why worry about man power shortages and high-cost labor? These two BIG PROBLEMS are now being solved by large and small manufacturers with Supersheen Advanced Barrel Finishing Equipment. A SINGLE UNIT INSTALLATION REPLACES FROM 2 TO 12 MEN—savings run as much as 95% under former finishing methods. Mail coupon at right for complete information.

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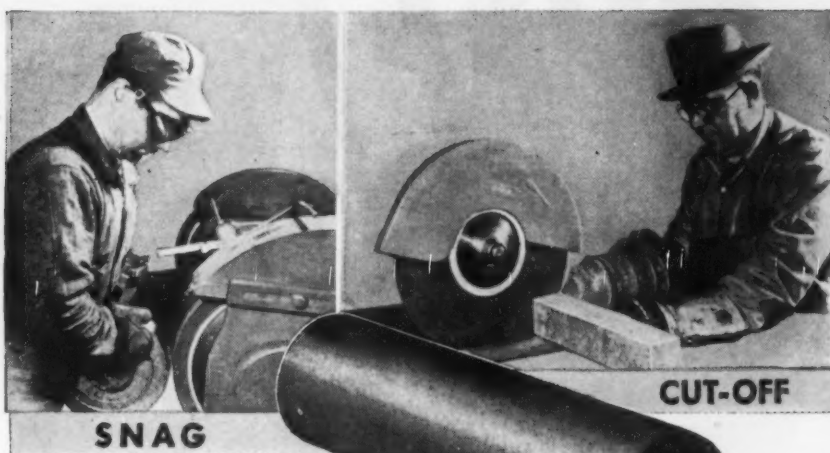
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GRINDING
WHEELS**

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CUTTING OFF

•

PRECISION GRINDING

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SNAGGING

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**MANUAL 645 AND
SPEED CALCULATOR
FREE ON REQUEST**

Technical Briefs

Metal Bond:

Strong lap joints in aluminum sheets possible with adhesive.

An adhesive strong enough to make lap joints in aluminum alloy sheets for airplane construction has been developed by Ciba Co., Inc., Kimberton, Pa. The adhesives in some instances have the full strength of the Alclad aluminum, tests show. Strength in shear is comparable to spotwelding and riveting, it is reported.

The resins are thermosetting compounds which cure without evolution of water or volatile matter at room or elevated temperatures. The general result is an adhesive of high resistance to acids and alkalies.

Strips Tested—Shear tests are made on a Baldwin-Sonntag 12-H hydraulic testing machine of 12,000 lb capacity. Specimens consist of two 1-in. strips of 16-gage Alclad aluminum bonded together with an overlap of 1/2 in. to form strips 11 1/2 in. long.

Tensile loads as high as 2500 lb have been applied on the 1/2 sq in. bond before failure in shear. Dial indicated loads are recorded. Lever operated, open front, face type grips permit rapid testing.



"I've come to ask the hand of your No. 8 drill press in marriage, Sir."

Turn to Page 180

THIS IS THE CUTTING FLUID YOU TOLD US YOU NEEDED

YOU WANTED STRENGTH OF FILM

which would give you longer tool life

YOU WANTED LUBRICITY

to withstand pressure and reduce friction

YOU WANTED VERSATILITY

one cutting fluid to do 90% of all jobs

YOU WANTED GERMICIDAL PROPERTIES

no rancidity, freedom from skin sores

YOU WANTED COOLER WORK

which could be handled bare-handed

YOU WANTED LOWER COSTS

how's 8¢ a gallon, in the machine?

THE ANSWER IS:

ANTISEP

ALL-PURPOSE BASE

—not a mere water soluble oil, but a fortified concentrate scientifically developed to give you "100 cuts in one!"

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ANTISEP "saves the day" for Cleveland valve manu- facturer—cuts cost 50%!

After several prominent cutting fluids had failed to meet requirements, this concern decided to try Antisept, diluted 25 to 1, in the machining of valve stems from 416 stainless steel. Warner & Swasey 5-spindle automatic screw machines were used. Result: lower costs, improved tool life, greater uniformity in pieces machined. Parts come off cool, permitting higher speeds and heavier cuts.



Ready to give you
on-the-job service . . .

Tiny holes? Easy!

Accurate holes? Easy!

Holes on production schedules? Easy!

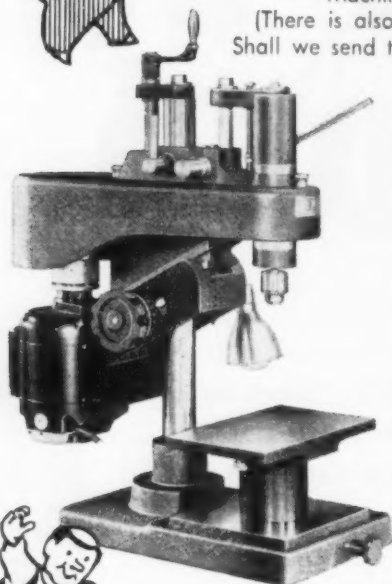
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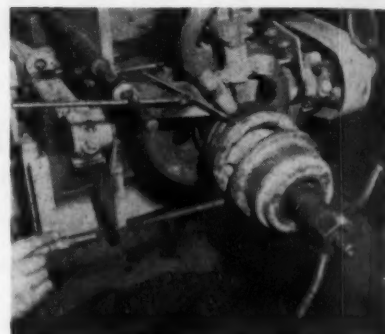
—Technical Briefs—

Dam Simplifies Welding Job

A simple dam used to support granulated welding composition permits efficient rebuilding of small, worn tractor rollers by the Unionmelt welding process.

Welding equipment is mounted in a stationary position over the roller. A welding positioner holds the roller and rotates it during welding.

Since these rollers are quite small, they cannot be rebuilt by submerged arc welding unless the granular welding composition is prevented from sliding away from the weld zone during welding. Welding speed is about 12 in. per minute. Direct current is used at about 200 amperes.



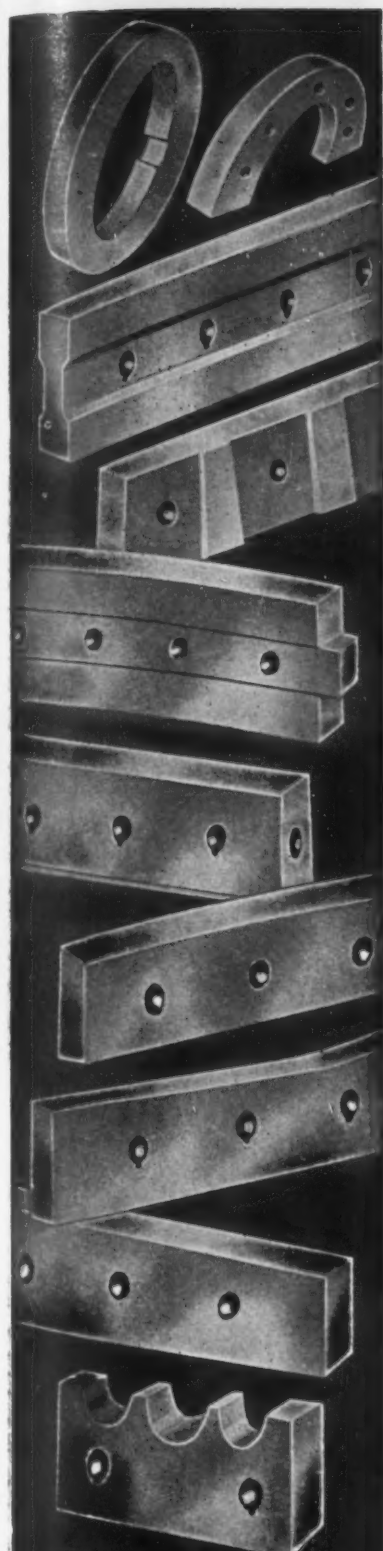
A SIMPLE SHELF type dam holds granulated welding composition on small rollers being rebuilt with weld deposit.

Pipe Changes Tunnel Methods

An odd shaped piece of steel-reinforced sewer pipe may greatly change methods in use today for building tunnelled sewers. Invented by Edward P. Wasabaugh, Saginaw, Mich., the pipe section looks like a squashed piece of concrete pipe. Elliptically shaped, the pipe is more than 25 pct higher than it is wide.

This odd shape permits one section, resting on its side, to be shoved through the other sections of the same size. Use of the new precast "Tunneliner" pipe, being supplied by Lawar Pipe and Tile Co. of Saginaw, requires a tunnel of 31½ in. by 49 in.

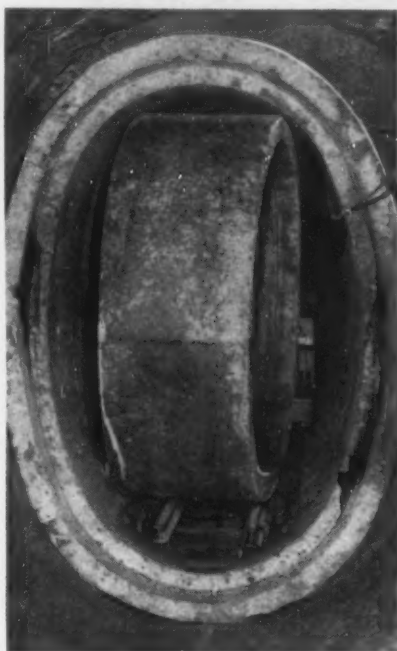
The inventor has also devised a machine, the "Tunnelugger," that moves along on flanged wheels on



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Technical Briefs



LESS DIGGING and no guess work in pouring a reinforced concrete sewer is claimed for the Tunnelugger, invention of an ex-Bay City engineer.

small tracks. It runs under its own power through sections already in place. A long steel arm on the "Tunnelugger" pushes the new section forward. It is then rotated around its horizontal axis until it is lined up with the previous section. The new section is then pulled snugly into place. A dry cement and sand is then used to back-fill the pipe.

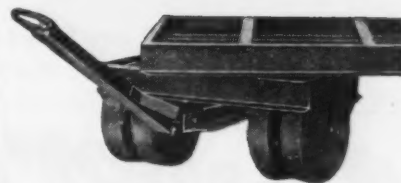
Minimizes Work — Less work and the elimination of guess work in pouring a reinforced concrete sewer is claimed for the new invention. The first installation of the new pipe is being made in Bay City, Mich.

The Bay City tunnels will be more than 5 miles long. Much of the distance is through crowded industrial and business areas where extensive excavation work would be prohibitive. The inventor, and ex-Bay City engineer, claims the old method would require digging a tunnel more than twice the size of the pipe to be used.

Turn to Page 182



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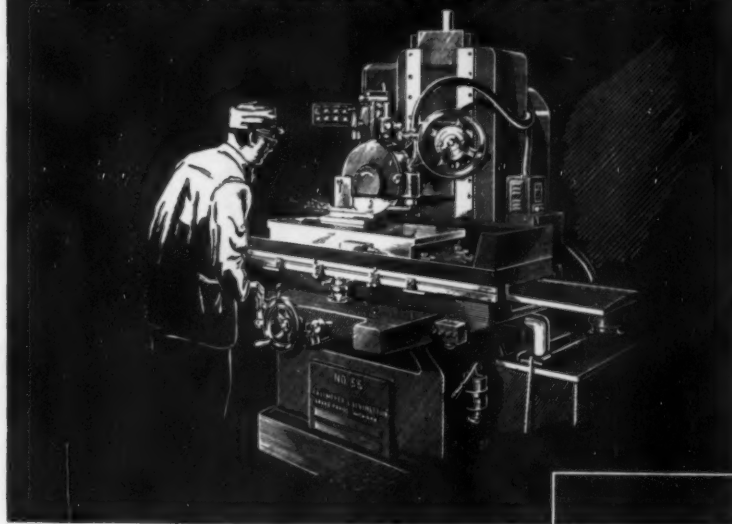
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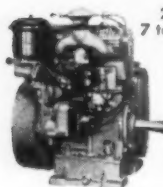


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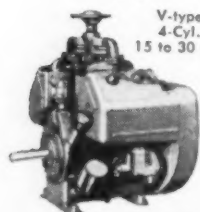
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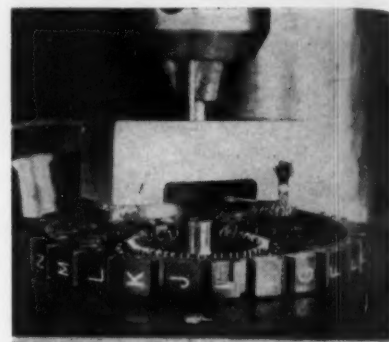
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Technical Briefs

Small Brushes:

Cleaning, deburring operations speeded with special fixtures.

Power brushes, many no longer than the end joint of a finger, are finding extensive application in industry, frequently to do work which previously had never been done satisfactorily because of excessive costs.



SMALL STRIP BRUSHES in special fixture are used in drill press to brush copper terminals before soldering operation.



GEARS ARE DEBURRED up to 50 times faster in special setup to handle airplane gears which were formerly rounded by hand. Time to finish each gear was reduced to 3 min.

Brush holders of the correct design, often permit stock brushes to be used in a way that enables them to contact definite surface areas regardless of the shape, position, or obstructions of the part.

Used alone or in holders these brushes made by Osborn Mfg. Co., Cleveland, are capable of fast, efficient, and low-cost work.

The table on facing page shows typical operations for which these brushes are being used.

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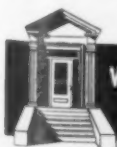
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Technical Briefs BRUSH OPERATIONS COMPARED

Article	Operation	Brush Size, in.	Speed, rpm
Aircraft engine parts	Smooth, clean drilled holes	1/4 3/8 1/2	25,000
Electrical fixtures	Preparing copper terminals for soldering	1/3	
Rubber covered flexible tubing	Remove excess rubber from interior to expose braided wire	7/8	3,500
Magnesium and aluminum motor blocks	Clean oil holes in motor blocks	3/8 7/8	1,750
Spark plug	Remove carbon and lead deposit from I.D. of spark plug shell	7/16	1,290
Optical instrument cases	Cleaning	1/4	3,500
Small gears after heat treating	Remove heat scale and white lead composition from arbor holes of small gears	3/8 1/2 5/8 3/4	1,750
Aluminum fuse body	Remove burrs from threaded holes	3/4	3,450
Supercharger casing casting	Deburr intersecting oil holes	.....	1,800

Study Electric Furnace Steel

A detailed survey of best United States practice in producing steel for seamless tubing has been prepared by the U. S. Department of Commerce.

Amount and time of additions of iron ore to the melt are important in production of highest quality rimmed or killed types of steel. A strong boil of the molten bath must be maintained by correct ore additions to avoid hydrogen absorption with attendant lowering of ductility and soundness of the cast ingot product.

Technical details of ladle and runner refractories and design in American and German practice are compared. Controlled pouring temperatures and speeds, mold preparation and coatings, new heat generating or insulating methods for hot tops, and metallurgical inspection controls are other practices employed to obtain high yields and an improved steel ingot product.

"Electric Steel Ingot Practice and Seamless Tube Manufacture" is available at 50¢ from the Office of Technical Services, U. S. Department of Commerce, Washington 25, D. C.

Turn to Page 184

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Technical Briefs

Atomic Plant Safety:

Air locks between pressurized zones protect plant personnel.

Air locks between "hot" and "cold" pressurized zones are being used to protect personnel against deadly air-borne contamination in atomic plants and laboratories, it was disclosed at a recent meeting of the American Society of Mechanical Engineers at the University of Washington.

New and more poisonous nuclear fission materials being processed on an industrial scale, call for extraordinary measures to provide adequate protection for personnel, W. W. McIntosh, staff engineer, General Electric Co., told the ASME.

Dusts, Vapors — Principal sources of air-borne contamination are gases, vapors and dusts evolved during processing. Radioactive materials are dangerous to living matter by radiation and by poisoning on entrance into the body, it was pointed out.

Radioactive Materials — Such materials must be handled remotely and from behind shielding. Arrangements for protecting personnel within operating buildings from these materials is, in some respects, less difficult, because of the necessary remoteness of the operator from the source of danger.

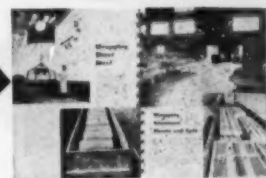


"Try an' get a job in one of them defense plants, Zeke—If'n he chases yuh as far as town—"

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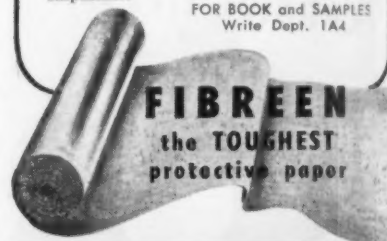


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Truman Policy: Squeeze Industry 'Til It Hurts

Wilson quits for a principle . . . Government squeeze on industry continues . . . Strike odds growing longer . . . Final settlement will come from the White House.

This week the steel industry is on the verge of a knock-down drag-out strike. The way things were running at midweek there was only about one chance in four that a strike could be averted.

Charles E. Wilson's resignation as defense mobilizer means that the steel industry has lost its one friend at court who knows the industry's problems. Those left to counsel President Truman are dead set against giving the industry anywhere near the price increase that would compensate for Wage Stabilization Board recommendations of about 30¢ an hr. Mr. Truman's complete acceptance of WSB recommendations (at the same time indicating that the steel industry's profits were enough to absorb such a raise), was a fatal blow to steel industry optimism.

For a Principle—Sudden as it was, Mr. Wilson's resignation did not come as a complete surprise to those who know him well. He is steadfastly opposed to any inflationary policy. And he had indicated in advance that he would be unwilling to scuttle his year-long fight for stabilization—especially if the scuttling involved what he considered an inequitable appeasement of labor. Since he quit his post for this principle, the White House will be responsible for whatever price-wage settlement finally results.

If a strike occurs, as now seems likely, it will recall one which followed a similar fracas in 1946. At that time, after a strike of more than a month—costing 6 million tons of steel and \$60 million in lost wages—a price increase of \$5 a ton was granted and a wage increase of 18½¢ an hr was awarded

to labor. That, too, was a White House settlement.

No Price Hearing—The last major steel strike was in 1949. On that occasion a fact-finding board appointed by the President ruled in favor of the union for noncontributory pensions. When the companies refused to give in, a month-long strike resulted. That one cost over 10 million tons of vital steel production and nearly \$120 million in lost wages. The union finally won when one steel company capitulated to its demands and the rest of the industry had to follow suit.

In the current dispute, both the steel panel and the WSB heard only arguments for and against a wage increase. The steel companies' case for a compensating price increase could be shown only by indirection, by translating union demands into cost figures. The Office of Price Stabilization has categorically stuck to the line that price relief could come only through adjustments under the Capehart Amendment. This covers cost increases only through last July 26; it makes no allowance for higher costs since then.

Market Still Calm—The steel industry would have been eligible for these increases—which will average about \$2 a ton—even if there hadn't been a wage case. By the same token it has received no official consideration at all for price relief to offset WSB wage recommendations. Now the Apr. 8 strike deadline is staring it in the face, and there's no friendly ear in court to hear its case. With such scant time remaining, it is hardly likely that the steel companies

will receive a clear-cut hearing on prices in time to avoid a strike.

In spite of the darkening steel outlook, purchasing agents remain calm. If a strike comes, there is little they can do to offset it. Either they have enough steel to tide them over a short strike, or they lack Controlled Materials Plan tickets to buy more, or they can't get short items such as cold-finished bars and heavy plates and structurals. For the most part they are just going to worry it through.

Strike Cost—A good many manufacturers could weather a short steel strike without losing production. Inventories have been on the uptrend for several months. But even a short strike would shatter any hope for early decontrol of steel distribution. A long strike would extend controls indefinitely.

If a long stoppage develops everyone will lose. Each week of strike would cost enough steel to build 300,000 6-room houses, each with an auto in the garage and a refrigerator in the kitchen. This is more than five times the amount of steel used in shipbuilding in this country in 1950.

How Long?—Steelmaking operations this week are scheduled at 102 pct of rated capacity, down half a point from the previous week. The strike deadline is next Tuesday. The union will give advance notice 96 hr before striking. Companies will start weaning blast furnaces about 3 or 4 days ahead of the deadline. Open-hearths will be kept going until one or one and a half days before the deadline to get all possible production.

No matter how carefully furnaces are inactivated, there is bound to be some damage to their refractory linings.



43,000 more in '51!

THE petroleum industry is aiming at 43,000 new wells for 1951 in order to meet the government's goal of 7 1/4 million barrels of oil a day.

This requires immense quantities of steel—for derricks, drills, buildings and tanks—and is in addition to the needs of western manufacturers of essential civilian products.

The fulfillment of these requirements has been aided by Kaiser Steel's constant expansion of facilities. With this result: Kaiser Steel's capacity has now reached 1,380,000 ingot tons annually. More than *double* the amount produced in 1944—the peak war year!

More evidence that the West Coast's only integrated, *independent* steel plant is helping to build a stronger West ... and a stronger nation!

It's good business to do business with

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PROMPT, DEPENDABLE DELIVERY AT COMPETITIVE PRICES • plates • continuous weld pipe • electric weld pipe • hot rolled strip • hot rolled sheet • alloy bars • carbon bars • structural shapes • cold rolled strip • cold rolled sheet • special bar sections • semi-finished steels • pig iron • coke oven by-products • **KAISER STEEL CORPORATION • LOS ANGELES** • OAKLAND • SEATTLE • PORTLAND • HOUSTON • TULSA • NEW YORK

Market Briefs

Quotas—International Materials Conference has recommended that the U. S. get 7324.5 tons of total first-half non-Soviet molybdenum production and 3880 tons of the tungsten. Available supplies are estimated at 10,016 tons of molybdenum and 8200 tons of tungsten, second quarter production expected to be boosted by 10 pct and 20 pct, respectively, above first quarter output. Britain will get 1629 tons of tungsten and 1029 tons of molybdenum, the second largest recommended allocation.

Car Orders—Southern Ry. System has announced the placing of orders for 3250 freight cars to cost approximately \$20,250,000. The Bessemer, Ala., plant of Pullman-Standard Car Manufacturing Co. has been given an order for 1500 gondolas, while 1750 hopper cars will be built by American Car and Foundry Co. at Huntington, W. Va. Southern Ry. has asked bids on 250 ore cars.

Contract Awarded—A \$500,000 contract for modification of nine twin-engined airliners has been awarded the Texas Engineering & Mfg. Co., Inc., by Pioneer Air Lines. Modification will take place at TEMCO's Greenville Div., Greenville, Texas, where the company has also been overhauling and converting fighter, bomber and transport aircraft for several foreign governments and American airlines.

On Order—Eighty-three lightweight locomotives have been ordered from General Electric Co. by Army Transportation Corps. Delivery of the \$14,296,790 order is scheduled for 12 months, depending upon materials allocations. Locomotives will be built by the American Locomotive Co. at Schenectady and will be supplied with electrical equipment made in G E's Erie, Pa., Works.

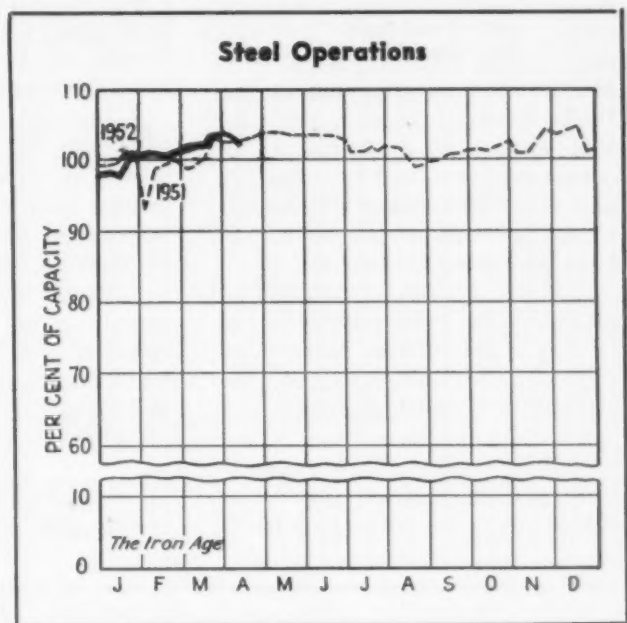
Catching Up—Steel warehouse stocks have shown marked improvement the past few weeks. Some now hold large stocks of light plate and light structurals. Heavier sizes are still hard to get, as are carbon bars. Practically all flat-rolled products require selling. In case of strike, the warehouse will be the steel consumer's best friend.

New Price—The British Ministry of Materials has raised domestic prices for aluminum ingot for the second time this year. Delivered price will be 19.25¢ per lb, an increase of ¼¢ per lb. Premiums remain unchanged. Electrolytic copper was also boosted ¼¢ to 28.87¢ per lb.

Make Its Own—Venezuela will start its own steel industry to take advantage of its rich iron ore deposits. Minister of Mines & Petroleum Santiago Vera Izquierdos said his office is making technical surveys and other preparations for the project. A mission has already been sent to Europe to complete some details.

Output—Canadian production and shipments for sale of primary iron and steel shapes made a new all time high record for the industry in 1951, according to figures compiled by Dominion Bureau of Statistics. Production in 1951 included 4,643,322 tons of carbon steel shapes and 157,498 tons of alloy steel shapes; for 1950 output of carbon steel shapes totalled 4,117,163 tons and alloy steel shapes, 137,859 tons, and for 1949 output included 3,556,507 tons of carbon and 109,735 tons of alloy steel shapes.

Ready for Strike—Defense Production Administration has at least one order drafted and ready to sign and put into immediate effect in the event of a steel strike. Officials decline to comment on the provisions of the order. It is understood, however, that it would suspend cashing of non-defense CMP tickets in order to spread what little steel is available among the most essential programs.



District Operating Rates—Per Cent of Capacity

Week of	Pittsburgh	Chicago	Youngstown	Philadelphia	West	Buffalo	Cleveland	Detroit	Wheeling	South	Ohio River	St. Louis	East	Aggregate
Mar. 23	103.0*	104.5	102.0	100.0	101.0	104.0	98.0	104.0	101.0	102.0	94.0	84.0	106.5	102.5
Mar. 30	105.0	104.5	102.0	100.0	101.5	104.0	99.0	104.0	101.0	102.0	94.0	84.0	118.0	102.0

Beginning Jan. 1, 1952, operations are based on annual capacity of 106,567,670 net tons.

* Revised.

April 3, 1952

Labor Unrest at High Level

Steel deadlock casts shadow throughout metal industry . . .

See no rapid aluminum settlement . . . Needs coordination . . .

Chile workers set Apr. 6 strike deadline—By R. L. Hatschek.

Pressure of the steel wage deadlock will be felt in the aluminum industry. Aluminum wage discussions, quiet by comparison, have been meekly following along the track laid by steel negotiations. Now the strike fuze is burning in steel but there is no strike deadline set for aluminum.

Findings of the Wage Stabilization Board panel on aluminum were supposed to be reported to WSB this week—they may yet be reported. But there is also a strong chance that it will be delayed because of Charles Wilson's resignation.

Labor's Stand—Position of workers in the aluminum industry is strengthened immeasurably by WSB recommendations in the steel case and President Truman's okay on the WSB proposals. With Mr. Truman stepping out of the White House, it is more probable that we'll have a Republican in office next year—so Philip Murray and the steelworkers will be out for all they can get now while they have presidential sympathy.

It looks as though there will be no aluminum wage settlement until May at the earliest. Meanwhile, everyone will be sweating out the steel settlement which comes first.

Real Question—What seems to have escaped most of the Washington planners, with the notable

MONTHLY AVERAGE PRICES	
The average prices of the major non-ferrous metals in March based on quotations appearing in THE IRON AGE, were as follows:	
	Cents Per Pound
Electrolytic copper, Conn. Valley	24.50
Lake copper, delivered	24.625
Straits tin, New York	\$1.215
Zinc, East St. Louis	19.50
Zinc, New York	20.29
Lead, St. Louis	18.80
Lead, New York	19.00

exception of ex-mobilizer Wilson, is that both high production and economic stabilization are vital to the nation's well-being. And no single factor can be divorced from the whole picture. Wages, prices, profits, production and expansion should all be considered simultaneously—not one by one.

Producing companies seem to have been backed into a position where they must apologize for profits. This is ridiculous. Profits are a must today in order to pay for necessary huge expansions and to attract more capital for the same purpose. Profits are the remains of sales after material costs, maintenance, service costs, wages and taxes. Consequently, the whole picture should be inspected.

Should Coordinate—Everybody knows this. But why don't they

seem to recognize it? If a wage increase is really a necessity then it should be granted. The same holds true for prices! What is needed is a healthy industry, be it steel or aluminum or copper or any other.

Another County—One more union getting its oar in is the International Union of Mine, Mill and Smelter Workers. That one resolved last week to go after a 25¢ pay boost in its next negotiations with the nonferrous industry. Other demands the IUMMSW will push are elimination of geographic differentials, better vacation and holiday deals and better shift set ups.

Brass, Too—Brass workers are also reported to be getting hot on the idea of a strike if their long-pending wage dispute is not settled soon. This trouble has been simmering for about 6 months and the union wants its piece of pie in a hurry. The WSB panel in this case recommended a 15¢ an hr increase along with other fringe benefits but the WSB itself has made no suggestions or proposals.

It is generally believed that the big steel hassle is delaying this also.

Another Country—It is also reported that Chilean workers want a cut. Labor employed by Anaconda Copper Mining Co. at Chuquicamata and Potrerillos has voted an Apr. 6 strike deadline. Precise nature of their wages demands is not known at press time. Chilean President Gonzalez Videla is said to have offered his services as arbitrator.

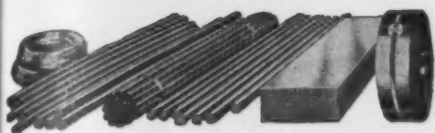
Chile is seeking a bonus price for the 20 pct of its copper that does not come to the U. S. on allocation by a previous agreement. The threat of a strike and probable higher wages may come in handy as a lever for higher prices.

With labor's appetite thus whetted by steel wage recommendations, the sixth wage round is on its way.

NONFERROUS METAL PRICES

	Mar. 26	Mar. 27	Mar. 28	Mar. 29	Mar. 31	Apr. 1
Copper, electro, Conn.	24.50	24.50	24.50	24.50	24.50	24.50
Copper, Lake delivered ...	24.625	24.625	24.625	24.625	24.625	24.625
Tin, Straits, New York	\$1.215	\$1.215	\$1.215	....	\$1.215	\$1.215
Zinc, East St. Louis	19.50	19.50	19.50	19.50	19.50	19.50
Lead, St. Louis	18.80	18.80	18.80	18.80	18.80	18.80

Note: Quotations are going prices.

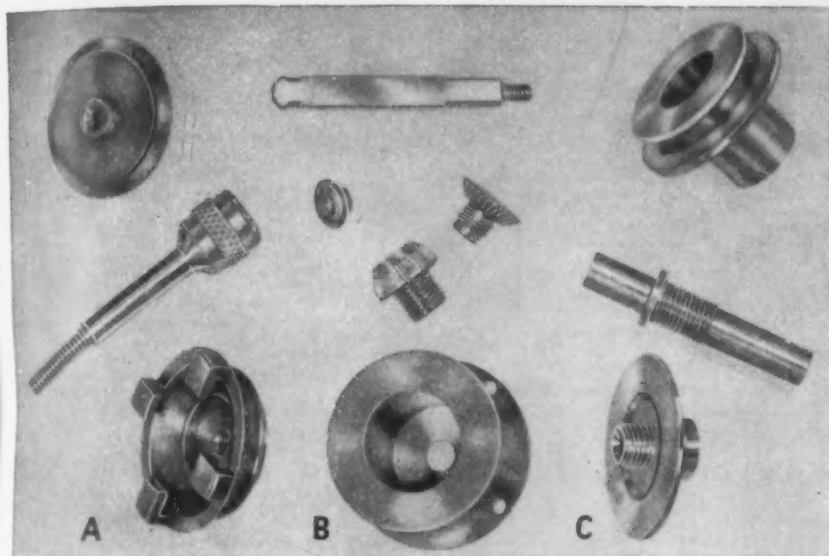


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COPPER ALLOY BULLETIN



MILLS IN BRIDGEPORT, CONN. AND INDIANAPOLIS, IND.—IN CANADA: NORANDA COPPER AND BRASS LIMITED, MONTREAL



A group of screw machine products. The operations for making items A, B and C, are described in the text. Courtesy New Haven Screw Machine Products, Milford, Connecticut.

Short Runs, Yet Precision Quality

Screw machine manufacturers are often called upon to supply a few hundred pieces of an item, some of which are quite complicated and sometimes very close in tolerance specifications.

Automatic screw machines are designed for production runs. The planning, special tool designing and preparation are the same for either long or short runs. For short runs, you've got to be right the first time as there is very little allowance for experimental work or errors in judgment since a few hundred pieces can absorb only a limited amount of such costs. Hence, the successful and profitable handling of difficult jobs made in short runs calls for an extremely high degree of engineering know-how and just plain ingenuity.

Of course, once developed and set up, reruns can be made with very little effort. However, the greatest benefit the operator receives from doing these difficult short-run jobs comes from the opportunity of doing normal work in long runs, since the buyers will naturally favor the supplier who goes out of his way to help him.

The following items were made on a short-run basis:

A—Pressure Head for Steam Trap

This is an unusual job and calls for clever planning.

1. Counterbore a $\frac{7}{8}$ diameter hole, which must be kept to a tolerance of plus 0.005" and minus 0.
2. Drill center.
3. Recess. The undercut is made with a swing tool.
4. Tap center hole.
5. Forming is done during counter-boring.

The lugs are made by secondary milling operations. First, the cutter removes the material on both sides of the pair of lugs opposite each other, then the work is indexed 90° and material on both sides of the other two lugs is removed. A third and fourth milling operation cleans up between the lugs.

Bridgeport commercial bronze rod No. 89, 1½" diameter, was used. Composition 89.5% copper, 2% lead, and balance zinc. Machinability rating 80% of free-cutting brass rod (rated at 100%). Rich bronze color and a

higher corrosion resistance than yellow brass.

B—Extension for Bellows Used in Thermostats

This reel-shaped item requires the removal of a considerable amount of material both inside and outside.

1. Center.
2. Drill large hole.
3. Drill small hole in center of base.
4. Center bore to square up inside base of large hole.
5. Forming tool cuts away excess stock for outside shape.
6. Four holes on larger rim are drilled as a secondary operation.

Since stock removal is exceptionally high, it was made from 1-9/16" Bridgeport Ledrite 6 brass rod (61% copper, 3.4% lead, balance zinc). Machinability rating 100%.

C—Part for Steam Trap

This item calls for a flange 0.046" thick with a tolerance of plus or minus 0.002" for both the thickness and outside diameter. Another important requirement is that the flange must be straight and flat.

1. Center and dwell.
2. Rough form.
3. Undercut.
4. Drill hole.
5. Taper, ream and finish form.
6. Thread.

Bridgeport's medium leaded Naval brass rod, alloy 28 (60% copper, 0.6% lead, 0.65% tin and remainder zinc). Machinability rating 50%. The 0.6% lead has raised the machinability appreciably since Naval brass without lead has a machinability rating of about 30%.

Many Alloys Available

Bridgeport makes a wide range of alloys for screw machine operation. Composition, physical and mechanical properties, machinability rating, corresponding specification numbers, etc., are tabulated in the Bridgeport "Technical Handbook." This booklet is especially valuable for companies making items which require alloys to meet various specifications. If you do not have a copy of this valuable booklet, write for one on your company stationery.

(8109)

Nonferrous Prices

MILL PRODUCTS

(Cents per lb, unless otherwise noted)

Aluminum

(Base 30,000 lb, f.o.b. ship, pt. frt. allowed)

Flat Sheet: 0.188 in., 2S, 3S, 30.1¢; 4S, 61S-O, 32¢; 52S, 34.1¢; 24S-O, 24S-OAL, 32.9¢; 75S-O, 75S-OAL, 39.9¢; 0.081 in., 2S, 3S, 31.2¢; 4S, 61S-O, 33.5¢; 52S, 35.6¢; 24S-O, 24S-OAL, 34.1¢; 75S-O, 75S-OAL, 41.8¢; 0.032 in., 2S, 3S, 32.9¢; 4S, 61S-O, 37.1¢; 52S, 39.3¢; 24S-O, 24S-OAL, 41.7¢; 75S-O, 75S-OAL, 52.2¢.

Plate 1/4 in. and heavier: 2S, 3S-F, 28.3¢; 4S-F, 30.2¢; 52S-F, 31.8¢; 61S-O, 30.8¢; 24S-O, 24S-OAL, 32.4¢; 75S-O, 75S-OAL, 38.8¢.

Extruded Solid Shapes: Shape factors 1 to 5, 36.2¢ to 74.5¢; 12 to 14, 36.9¢ to 89¢; 24 to 26, 39.6¢ to 116¢; 36 to 38, 47.2¢ to 170¢.

Rod, Rolled: 1.5 to 4.5 in., 2S-F, 3S-F, 37.5¢ to 33.5¢; cold finished, 0.375 to 3 in., 2S-F, 3S-F, 40.5 to 35¢.

Screw Machine Stock: Rounds, 11S-T3, 1/4 to 1 1/32 in., 53.5¢ to 42¢; 3/8 to 1 1/2 in., 41.5¢ to 39¢; 1 1/2 to 3 in., 38.5¢ to 36¢; 17S-T4 lower by 1.5¢ per lb. Base 5000 lb.

Drawn Wire: Coiled, 0.051 to 0.374 in., 2S, 39.5¢ to 29¢; 52S, 48¢ to 35¢; 61S, 51¢ to 42¢; 17S-T4, 54¢ to 37.5¢; 61S-T4, 48.5¢ to 37¢; 75S-T6, 84¢ to 67.5¢.

Extruded Tubing, Rounds: 63S-ST-5, OD in. 1 1/4 to 2, 37¢ to 54¢; 2 to 4, 33.5¢ to 45.5¢; 4 to 6, 34¢ to 41.5¢; 6 to 9, 34.5¢ to 43.5¢.

Roofing Sheet, Flat: 0.019 in. x 28 in. per sheet, 72 in., \$1.42; 96 in., \$1.522; 120 in., \$1.902; 144 in., \$2.284. Gage 0.24 x 28 in., 72 in., \$1.379; 96 in., \$1.839; 120 in., \$2.299; 144 in., \$2.759. Coiled Sheet: 0.019 in. x 28 in., 28.2¢ per lb; 0.024 in. x 28 in., 26.9¢ lb.

Magnesium

(F.O.B. mill, freight allowed)

Sheet and Plate: FS1-O, 1/4 in., 63¢; 3/16 in., 65¢; 1/8 in., 67¢; B & S Gage 10, 68¢; 12, 72¢. Specification grade higher. Base: 30,000 lb.

Extruded Round Rod: M, diam in., 1/4 to 0.311 in., 74¢; 1/2 to 3/4 in., 57.5¢; 1 1/4 to 1.740 in., 53¢; 2 1/2 to 5 in., 48.5¢. Other alloys higher. Base up to 3/4 in. diam, 10,000 lb; 3/4 to 2 in., 20,000 lb; 2 in. and larger, 30,000 lb.

Extruded Solid Shapes, Rectangles: M. In weight per ft, for perimeters less than size indicated, 0.10 to 0.11 lb, 3.5 in., 62.3¢; 0.22 to 0.25 lb, 5.9 in., 59.3¢; 0.50 to 0.59 lb, 8.6 in., 56.7¢; 1.8 to 2.59 lb, 19.5 in., 53.8¢; 4 to 6 lb, 28 in., 49¢. Other alloys higher. Base, in weight per ft of shape: Up to 1/2 lb, 10,000 lb; 1/2 to 1.80 lb, 20,000 lb; 1.80 and heavier, 30,000 lb.

Extruded Round Tubing: M, wall thickness, outside diam, in., 0.049 to 0.057; 1/4 in. to 5/16, \$1.40; 5/16 to 3/8, \$1.26; 3/8 to 1/2, \$1.12; 1/2 to 3/4, \$1.00; 3/4 to 1, \$0.88; 1 to 2 in., \$0.76; 2 to 3 in., \$0.64; 3 to 4 in., \$0.56. Other alloys higher. Base, OD in in.: Up to 1 1/2 in., 10,000 lb; 1 1/2 in. to 3 in., 20,000 lb; 3 in. and larger, 30,000 lb.

Titanium

(10,000 lb base, f.o.b. mill)

Commercially pure and alloy grades: Sheets and strip, HR or CR, \$15; Plate, HR, \$12; Wire, rolled and/or drawn, \$10; Bar, HR or forged, \$6; Forgings, \$6.

Nickel and Monel

(Base prices, f.o.b. mill)

	"A" Nickel	Monel
Sheets, cold-rolled	77	60 1/2
Strip, cold-rolled	83	63 1/2
Rods and bars	73	58 1/2
Angles, hot-rolled	73	58 1/2
Plates	75	59 1/2
Seamless tubes	106	93 1/2
Shot and blocks		53 1/2

Copper, Brass, Bronze

(Freight prepaid on 200 lb)

	Sheet	Rods	Extruded Shapes
Copper	41.68		41.28
Copper, h-r		37.53	
Copper, drawn		38.78	
Low brass	39.67	39.36	
Yellow brass	38.28	37.97	
Red brass	40.14	39.83	
Naval brass	43.20	37.26	38.52
Leaded copper		41.58	
Com'l bronze	41.13	40.82	
Mang. bronze	46.92	40.81	42.37
Phos. bronze	61.07	61.32	
Muntz metal	41.18	36.74	37.99
Ni silver, 10 pct	49.82	52.04	

PRIMARY METALS

(Cents per lb, unless otherwise noted)

Aluminum ingot, 99+%, 10,000 lb, freight allowed 19.00
Aluminum pig 18.00
Antimony, American, Laredo, Tex. 50.00
Beryllium copper, 3.75-4.25% Be. 1.56
Beryllium aluminum 5% Be, Dollars per lb contained Be \$69.00
Bismuth, ton lots 22.25
Cadmium, del'd 22.55
Cobalt, 97-99% (per lb) \$2.40 to \$2.47
Copper, electro, Conn. Valley 24.50
Copper, Lake, delivered 24.625
Gold, U. S. Treas., dollars per oz. \$35.00
Indium, 99.8%, dollars per troy oz. 22.25
Iridium dollars per troy oz. 200
Lead, St. Louis 18.80
Lead, New York 19.00
Magnesium, 99.8+%, f.o.b. Freeport, Tex., 10,000 lb. 24.50
Magnesium, sticks, 100 to 500 lb. 42.00 to 44.00
Mercury, dollars per 76-lb. flask, f.o.b. New York \$207 to \$210
Nickel electro, f.o.b. N. Y. warehouse 59.58
Nickel oxide sinter, at Copper Creek, Ont., contained nickel 52.75
Palladium, dollars per troy oz. 24.00
Platinum, dollars per troy oz. \$90 to \$93
Silver, New York, cents per oz. 88.00
Tin, New York \$1.215
Titanium, sponge 55.00
Zinc, East St. Louis 19.50
Zinc, New York 20.20
Zirconium copper, 50 pct \$6.20

REMELTED METALS

Brass Ingot

(Cents per lb, delivered carloads)

85-5-5-5 ingot
No. 115 27.25
No. 120 26.75
No. 123 26.25
80-10-10 ingot
No. 305 33.00
No. 315 30.50
88-10-2 ingot
No. 210 41.50
No. 215 40.00
No. 245 34.50
Yellow ingot
No. 405 23.25
Manganese bronze
No. 421 30.50

Aluminum Ingot

(Cents per lb, 10,000 lb and over)

95-5 aluminum-silicon alloys
0.30 copper, max. 20.6
0.60 copper, max. 20.4
Piston alloys (No. 122 type) 21.2
No. 12 alum. (No. 2 grade) 19.5
108 alloy 20.6
195 alloy 20.8
13 alloy 20.8
ASX-679 20.5

Steel deoxidizing aluminum, notch-bar granulated or shot

Grade 1—95-97 1/2% 18.80
Grade 2—92-95% 18.60
Grade 3—90-92% 18.40
Grade 4—85-90% 18.20

ELECTROPLATING SUPPLIES

Anodes

(Cents per lb, freight allowed, 500 lb lots)

Copper
Cast, oval, 15 in. or longer 37.84
Electrodeposited 33 1/2
Flat rolled 38.34
Forged ball anodes 43
Brass, 80-20
Cast, oval, 15 in. or longer 34 1/2
Zinc, oval 26 1/2
Ball anodes 25 1/2
Nickel 99 pct plus
Cast 76.00
Rolled, depolarized 77.00
Cadmium \$2.80
Silver 999 fine, rolled, 100 oz lots, per troy oz., f.o.b. Bridgeport, Conn. 97 1/2

Chemicals

(Cents per lb, f.o.b. shipping points)

Copper cyanide, 100 lb drum 63
Copper sulfate, 99.5 crystals, bbl. 12.85
Nickel salts, single or double, 4-100 lb bags, frt. allowed 20 1/2
Nickel chloride, 375 lb drum 27 1/2
Silver cyanide, 100 oz lots, per oz. 67 1/2
Sodium cyanide, 96 pct domestic 200 lb drums 19.25
Zinc cyanide, 100 lb drum 47.7

SCRAP METALS

Brass Mill Scrap

(Cents per pound, add 1/2¢ per lb for shipments of 20,000 to 40,000 lb; add 1¢ for more than 40,000 lb)

	Heavy	Turnings
Copper	21 1/2	20 1/2
Yellow brass	19 1/2	17 1/2
Red brass	20 1/2	19 1/2
Comm. bronze	20 1/2	19 1/2
Mang. bronze	18 1/2	17 1/2
Brass rod ends	18 1/2	

Custom Smelters' Scrap

(Cents per pound, carload lots, delivered to refinery)

No. 1 copper wire 19.25
No. 2 copper wire 17.75
Light copper 16.50
Refinery brass 17.25
Radiators 14.75
* Dry copper content.

Ingot Makers' Scrap

(Cents per pound, carload lots, delivered to refinery)

No. 1 copper wire 19.25
No. 2 copper wire 17.75
Light copper 16.50
No. 1 composition 18.50
No. 1 comp. turnings 18.25
Rolled brass 15.50
Brass pipe 16.50
Radiators 14.75

Aluminum

Mixed old cast 9.75
Mixed new clips 11.00
Mixed turnings, dry 9.50
Pots and pans 9.25

Dealers' Scrap

(Dealers' buying price, f.o.b. New York in cents per pound)

Copper and Brass

No. 1 heavy copper and wire. 18 1/2—19 1/2
No. 2 heavy copper and wire. 17 1/2—17 3/4
Light copper 16—16 1/2
New type shell cuttings 16—16 1/2
Auto radiators (unsweated) 14 1/2—14 3/4
No. 1 composition 18—18 1/2
No. 1 composition turnings 17 1/2—18
Unlined red car boxes 16 1/2—17 1/2
Cocks and faucets 12—12 1/2
Mixed heavy yellow brass 15—15 1/2
Old rolled brass 16—16 1/2
Brass pipe 16—16 1/2
New soft brass clippings 16—16 1/2
Brass rod ends 15 1/2—16
No. 1 brass rod turnings 15—15 1/2

Aluminum

Alum. pistons and struts 6 1/2—7 1/2
Aluminum crankcases 7 1/2—8
2S aluminum clippings 10 1/2—11
Old sheet and utensils 7 1/2—8
Borings and turnings 5—6
Misc. cast aluminum 7 1/2—8
Dural clips (24S) 7 1/2—8

Zinc

New zinc clippings 13 1/2—13 3/4
Old zinc 10—10 1/2
Zinc routings 6 1/2—7
Old die cast scrap 6 1/2—7

Nickel and Monel

Pure nickel clippings 35—36
Clean nickel turnings 35—36
Nickel anodes 35—36
Nickel rod ends 35—36
New Monel clippings 28—29
Clean Monel turnings 20—21
Old sheet Monel 28—29
Nickel silver clippings, mixed 13—14
Nickel silver turnings, mixed 12—13

Lead

Soft scrap, lead 15 1/2—16
Battery plates (dry) 10—10 1/2
Batteries, acid free 7—7 1/2

Magnesium

Segregated solids 15—16
Castings 14—15

Miscellaneous

Block tin 100—110
No. 1 pewter 80
No. 1 auto babbitt 60
Mixed common babbitt 16 1/2—16 3/4
Solder joints 22—23
Siphon tops 60
Small foundry type 21—22
Monotype 18 1/2—19
Lino. and stereotype 17 1/2—18
Electrotype 16—16 1/2
Hand picked type shells 10—11
Lino. and stereo. dross 8 1/2—9
Electro. dross 7 1/2—8

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New York

3/4-19 1/2
3/4-17 1/2
3/4-16 1/2
3/4-16 1/2
1/4-14 1/2
1/4-13 1/2
3/4-13
3/4-17 1/2
3/4-16
3/4-12 1/2
3/4-15 1/2
3/4-16 1/2
3/4-16 1/2
3/4-16 1/2
1/2-16
1/2-15 1/2

1/2-7 1/2
1/2-8
1/2-10 1/2
1/2-8
1/2-6
1/2-8
1/2-8

1/4-12 1/2
1/4-10 1/2
3/4-7
3/4-7

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—21
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3/4-16
3/4-10 1/2
—7 1/2

—16
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—110
80
60
4-16 1/2
—23
60
—22
4-19
4-18
—16 1/2
—11
4-9
4-8

1952



Industrial Jeweler at work...

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"Bristol-Fashion" means Brass at its Best

Iron and Steel Scrap Markets

Trade Weighs Steel Strike Effects

Even if mills would like to swell their 15-day scrap piles they probably won't be able . . . Collections are slow and yard activity is off . . . Cast grades continue in downhill skid.

As the probability of a steel strike grows and the Apr. 8 deadline looms larger, the scrap trade is taking stock of its position. Mill stockpiles are low—about at a 15-day average, according to National Production Authority—and openhearth demand is heavy.

Even if steel mills were eager to collect scrap during a strike period, many factors would be lined up against them.

What will probably happen is that scrap flow will back up in dealer and broker hands.

Collectors are just not out in the numbers they have been, resulting in very slow operations for this time of the year. Continued heavy operations throughout the winter months had much to do with this. The back-up will not be mountainous.

With the odds in favor of a strike and slim chances for taking scrap during the strike, movement of good openhearth material has increased some at major steelmaking centers.

Dealers in most districts report slackened yard intake and preparation. Auto wreckers are particularly burned up because of all the speechmaking and flagwaving only a short time ago. They can't find markets for the huge boost in material they are scrapping.

Cast prices have slipped even further below ceiling in the past week in Chicago, Philadelphia and New York.

Pittsburgh—The market has tightened slightly. Good scrap in dealers' hands is still relatively sparse, and shipments have slowed due to high inspection standards of the mills. Yards are reluctant to ship because of extensive downgrading. It was reported here that allocations have picked up at some eastern mills, although for the most part NPA is limiting allocations to industrial and

railroad scrap. Cast market is dead, with virtually no trading.

Chicago—Scrap movement here was generally brisk. Dealers seemed to be moving more of their inventory out into the market, apparently as a result of steel strike possibilities. In openhearth and electric furnace grades, demand continued strong. Upgrading has disappeared; in-transit preparation has pretty much followed it. Machine shop turnings were reported spotty. There were further reports of springboard cutting. Mill inspections continue to be tight, and mills seem to be accumulating a fair reserve, with inventories ranging from 3 weeks to 40 days.

Philadelphia—Local scrap trade is getting into pretty sad shape. Cast market is worse than ever, while openhearts continue to clamor for good material. Flow of material is very slow, as collectors are not out in the streets. Last sale of unstripped motor blocks was \$40 a couple of weeks ago, and cupola cast has slipped further to \$48 to \$49 delivered.

New York—Scrap is moving along fairly well in this district but collections are low for this time of year. This may well be the result of the high level of activity throughout the winter. Cast iron is off further in price and motor blocks cannot find a home.

Detroit—Scrap is moving slowly for the simple reason that not much is being generated in the automobile and related businesses. Production of cars continues slow as the first quarter ends and it is too early to predict how much more scrap will result from stepped up second quarter production. Of the cast scrap, clean auto scrap is the only grade moving at ceiling price. Uneasiness over prospects of the steel strike is a contributing factor to the slow market.

Cleveland—Scrap movement in the area fell off last week although the threatened steel strike had caused heavy shipping in previous weeks.

With the danger of a strike once more facing the industry shipments were expected to revive this week. At the beginning of the week no mills had made preparation for stopping shipments. Such action would not be necessary until later in the week. Some quarters report a stronger feeling in the market as evidenced by mills once more requesting allocations—some for heavy scrap only.

St. Louis—Following a lull in issuance of allocations for scrap iron, directives now are being received here in greater volume, but are for shipments to the Eastern mills, where the situation is tighter than it is in the St. Louis industrial district. Uncertainty of the steel strike has caused the trade to be more cautious in its commitments. Prices of openhearth grades are firm at ceiling prices, but foundry grades are weak, with no buying. Collections have improved with warmer weather.

Birmingham—Scrap steel is getting a little tighter here, although there is enough coming in to take care of mills and other users. Brokers say the reason for the slowup is that much steel from the South is being allocated to northern mills and that farmers, one of the dealers' best sources of supply, are now working their farms and not gathering scrap as they did during the Winter. Cast market continues easy with little demand.

Cincinnati—One local consumer came into the market last week for a tonnage of clean motor blocks. Buying was restricted to normal shippers and dealers, with the price well below ceiling at \$47 per gross ton delivered. Scrap shipments this week were expected to step up because of the impending steel strike. New orders were held at a minimum last week. Railroads are reported to be shipping quantities of scrap above average for this time. Cast market remains weak.

Boston—Market here continues to show little change from week to week. Steel grades are flowing in good quantity before the pressure of heavy demand. Cast grades are dull.

Buffalo—Scrap movement improved this week. Cast continued weak, with sales at about \$2 per ton below ceiling price.

SCRAP

for your every requirement

LURIA BROTHERS AND COMPANY, INC.

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MODENA, PENNA.

PITTSBURGH, PENNA.

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Philadelphia 7, Penna.



BIRMINGHAM, ALA.

Empire Building

CHICAGO, ILLINOIS

100 W. Monroe St.

HOUSTON, TEXAS

1114 Texas Av. Bldg.

PITTSBURGH, PA.

Oliver Building

BOSTON, MASS.

Statler Building

CLEVELAND, OHIO

1022 Midland Bldg.

LEBANON, PENNA.

Luria Building

PUEBLO, COLORADO

334 Colorado Bldg.

BUFFALO, N. Y.

Genesee Building

DETROIT, MICHIGAN

2011 Book Building

NEW YORK, N. Y.

100 Park Avenue

READING, PENNA.

Luria Building

ST. LOUIS, MISSOURI

2052 Railway Exchange Bldg.

SAN FRANCISCO, CALIFORNIA

Pacific Gas & Elec. Co., Bldg.

LEADERS IN IRON AND STEEL SCRAP SINCE 1869

Berman

Scrap Prices

Iron and Steel

SCRAP PRICES

(Maximum basing point prices, per gross ton, as set by OPS in CPR 5 and amendments. Shipping point and delivered prices calculated as shown below.)

GRADES	OPS No.	Switching Charge (Dollars per gross ton)															
		Pittsburgh	Johnstown	Brackenridge	Butler	Midland	Monessen	Sharon	Youngstown	Canton	Steubenville	Warren	Wairton	Cleveland	Buffalo	Cincinnati	Chicago
No. 1 bundles	1	\$44.00	\$44.00	\$43.00	\$42.50	\$42.00	\$41.00	\$41.15	\$40.00	\$39.50	\$38.00	\$37.00	\$36.00	\$35.00	\$34.00	\$33.00	\$32.00
No. 1 busheling	2	44.00	44.00	43.00	42.50	42.00	41.00	41.15	40.00	39.50	38.00	37.00	36.00	35.00	34.00	33.00	32.00
No. 1 heavy melting	3	43.00	43.00	42.00	41.50	41.00	40.00	40.15	39.00	38.50	37.00	36.00	35.00	34.00	33.00	32.00	31.00
No. 2 heavy melting	4	43.00	43.00	42.00	41.50	41.00	40.00	40.15	39.00	38.50	37.00	36.00	35.00	34.00	33.00	32.00	31.00
No. 2 bundles	5	43.00	43.00	42.00	41.50	41.00	40.00	40.15	39.00	38.50	37.00	36.00	35.00	34.00	33.00	32.00	31.00
Machine shop turnings	6	34.00	34.00	33.00	32.50	32.00	31.00	31.15	30.00	29.50	28.00	27.00	26.00	25.00	24.00	23.00	22.00
Mixed borings and turnings	7	38.00	38.00	37.00	36.50	36.00	35.00	35.15	34.00	33.50	32.00	31.00	30.00	29.00	28.00	27.00	26.00
Shoveling turnings	8	38.00	38.00	37.00	36.50	36.00	35.00	35.15	34.00	33.50	32.00	31.00	30.00	29.00	28.00	27.00	26.00
Cast iron borings	10	38.00	38.00	37.00	36.50	36.00	35.00	35.15	34.00	33.50	32.00	31.00	30.00	29.00	28.00	27.00	26.00
No. 1 chemical borings	26	41.00	41.00	40.00	39.50	39.00	38.00	38.15	37.00	36.50	35.00	34.00	33.00	32.00	31.00	30.00	29.00
Forge crops	11	51.50	51.50	50.50	50.00	49.50	48.50	48.65	47.50	47.00	46.50	45.50	44.50	43.50	42.50	41.50	40.50
Bar crops and plate	12	49.00	49.00	48.00	47.50	47.00	46.00	46.15	45.00	44.50	44.00	43.00	42.00	41.00	40.00	39.00	38.00
Punchings and plate	14	46.50	46.50	45.50	45.00	44.50	43.50	43.65	42.50	42.00	41.50	40.50	39.50	38.50	37.50	36.50	35.50
Electric furnace bundles	15	46.00	46.00	45.00	44.50	44.00	43.00	43.15	42.00	41.50	41.00	40.00	39.00	38.00	37.00	36.00	35.00
Cut struct., plate, 3 ft and less	16	47.00	47.00	46.00	45.50	45.00	44.00	44.15	43.00	42.50	42.00	41.00	40.00	39.00	38.00	37.00	36.00
Cut struct., plate, 2 ft and less	17	49.00	49.00	48.00	47.50	47.00	46.00	46.15	45.00	44.50	44.00	43.00	42.00	41.00	40.00	39.00	38.00
Cut struct., 1 ft and less	18	50.00	50.00	49.00	48.50	48.00	47.00	47.15	46.00	45.50	45.00	44.00	43.00	42.00	41.00	40.00	39.00
Foundry steel, 2 ft and less	20	44.00	44.00	43.00	42.50	42.00	41.00	41.15	40.00	39.50	39.00	38.00	37.00	36.00	35.00	34.00	33.00
Foundry steel, 1 ft and less	21	46.00	46.00	45.00	44.50	44.00	43.00	43.15	42.00	41.50	41.00	40.00	39.00	38.00	37.00	36.00	35.00
Heavy trimmings	24	43.00	43.00	42.00	41.50	41.00	40.00	40.15	39.00	38.50	38.00	37.00	36.00	35.00	34.00	33.00	32.00
No. 1 RR heavy melting	RR 1	46.00	46.00	45.00	44.50	44.00	43.00	43.15	42.00	41.50	41.00	40.00	39.00	38.00	37.00	36.00	35.00
Scrap rails, random lengths	RR 14	48.00	48.00	47.00	46.50	46.00	45.00	45.15	44.00	43.50	43.00	42.00	41.00	40.00	39.00	38.00	37.00
Scrap rails, 3 ft and less	RR 16	51.00	51.00	50.00	49.50	49.00	48.00	48.15	47.00	46.50	46.00	45.00	44.00	43.00	42.00	41.00	40.00
Scrap rails, 2 ft and less	RR 17	52.00	52.00	51.00	50.50	50.00	49.00	49.15	48.00	47.50	47.00	46.00	45.00	44.00	43.00	42.00	41.00
Scrap rails, 18 in. and less	RR 18	54.00	54.00	53.00	52.50	52.00	51.00	51.15	50.00	49.50	49.00	48.00	47.00	46.00	45.00	44.00	43.00
Perforating rails	RR 15	53.00	53.00	52.00	51.50	51.00	50.00	50.15	49.00	48.50	48.00	47.00	46.00	45.00	44.00	43.00	42.00
Uncut tires	RR 20	48.00	48.00	47.00	46.50	46.00	45.00	45.15	44.00	43.50	43.00	42.00	41.00	40.00	39.00	38.00	37.00
Cut tires	RR 21	51.00	51.00	50.00	49.50	49.00	48.00	48.15	47.00	46.50	46.00	45.00	44.00	43.00	42.00	41.00	40.00
Cut bolsters and side frames	RR 23	49.00	49.00	48.00	47.50	47.00	46.00	46.15	45.00	44.50	44.00	43.00	42.00	41.00	40.00	39.00	38.00
RR specialties	RR 24, 28, 29	51.00	51.00	50.00	49.50	49.00	48.00	48.15	47.00	46.50	46.00	45.00	44.00	43.00	42.00	41.00	40.00
Solid steel axles	RR 25	56.00	56.00	55.00	54.50	54.00	53.00	53.15	52.00	51.50	51.00	50.00	49.00	48.00	47.00	46.00	45.00
No. 3 steel wheels	RR 27	51.00	51.00	50.00	49.50	49.00	48.00	48.15	47.00	46.50	46.00	45.00	44.00	43.00	42.00	41.00	40.00
Unassorted	RR 35	40.00	40.00	39.00	38.50	38.00	37.00	37.15	36.00	35.50	35.00	34.00	33.00	32.00	31.00	30.00	29.00

Cast Scrap Ceilings

Prices set by CPR 5, OPS
(F.o.b. all shipping points)

Grades	OPS No.	Price
Cupola cast	1	\$49.00
Charging box cast	2	47.00
Heavy breakable cast	3	45.00
Cast iron brake shoes	5	41.00
Stove plate	6	46.00
Clean auto cast	7	52.00
Unstripped motor blocks	8	43.00
Cast iron carwheels	9	47.00
Malleable	10	55.00
Drop broken mach'y cast	11	52.00

Ceiling price of clean cast iron foundry runout or prepared cupola drops is 75 pct of corresponding grade.

Cast Prices

(Below-Ceiling Prices at Some Districts)

PITTSBURGH

(Delivered)

Drop broken mach'y cast	\$52.50 to \$53.00
Cupola cast	49.50 to 50.00
Heavy breakable	45.50 to 46.00

CHICAGO

(Delivered)

Cupola cast	\$44.00 to \$45.00
Stove plate	40.50 to 41.50
Heavy breakable	42.00 to 44.00
Drop broken machinery	47.00 to 49.00
Unstripped motor blocks	36.00 to \$8.00
Charging box cast	44.00 to 45.00
Clean auto cast	47.00 to 48.00

PHILADELPHIA

(Delivered)

Cupola cast	\$48.00 to \$49.00
Clean auto cast	53.00 to 54.00
Unstripped motor blocks	39.00 to 40.00

CLEVELAND

(Delivered)

Unstripped motor blocks	\$40.00 to \$41.00
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BIRMINGHAM

(Delivered)

Cupola cast	\$41.00 to \$42.00
Stove plate	39.00 to 40.00
Charging box cast	29.00 to 40.00
Heavy breakable	36.00 to 37.00
Drop broken machinery	41.00 to 42.00
Unstripped motor blocks	36.00 to 37.00

ST. LOUIS

(Delivered)

Heavy breakable	\$45.00
Stove plate	42.00

NEW YORK

(Brokers' buying prices)

Drop broken machinery	\$49.50 to \$50.50
Mixed yard cast	44.00 to 45.00
Charging box cast	43.00 to 44.00
Heavy breakable	42.50 to 43.50
Unstripped motor blocks	35.00

BOSTON

(Brokers' buying prices)

Cupola cast	\$46.00
Stove plate	42.00 to 43.00
Unstripped motor blocks	35.00

DETROIT

(Brokers' buying prices)

Cupola cast	\$46.00
Charging box	45.00
Heavy breakable	43.00
Cast iron brake shoes	39.00
Stove plate	44.00
Unstripped motor blocks	40.00
Drop broken machinery cast	50.00

CINCINNATI

(Delivered)

Unstripped motor blocks	\$40.00
Stove plate	45.00
Clean auto cast	47.00

BUFFALO

(F.o.b. shipping point)

Cupola cast	\$47.00 to \$48.00
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SAN FRANCISCO

(Delivered)

Cupola cast	\$42.50
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LOS ANGELES

(Delivered)

Cupola cast	\$46.00
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SEATTLE

(Delivered)

Cupola cast	\$38.00
Heavy breakable	32.00

SHIPPING POINT PRICES (Except RR scrap)
—for shipping points within basing points, the ceiling shipping point price is the basing point price, less switching charge. The ceiling for shipping points outside basing points is the

basing point price yielding the highest shipping point price, less the lowest established freight charge. Dock charge, where applicable, is \$1.25 per gross ton except: Memphis, 95¢; Great Lakes ports, \$1.50¢, and New England ports, \$1.75. Maximum shipping point price on No. 1 bundles (prime grade) in New York City is \$36.99 per gross ton with set differentials for other grades. Hudson and Bergen County, N. J., shipping point prices are computed from Bethlehem basing point. All New Jersey computations use all-rail transport. Cast scrap shipping point prices are given in table.

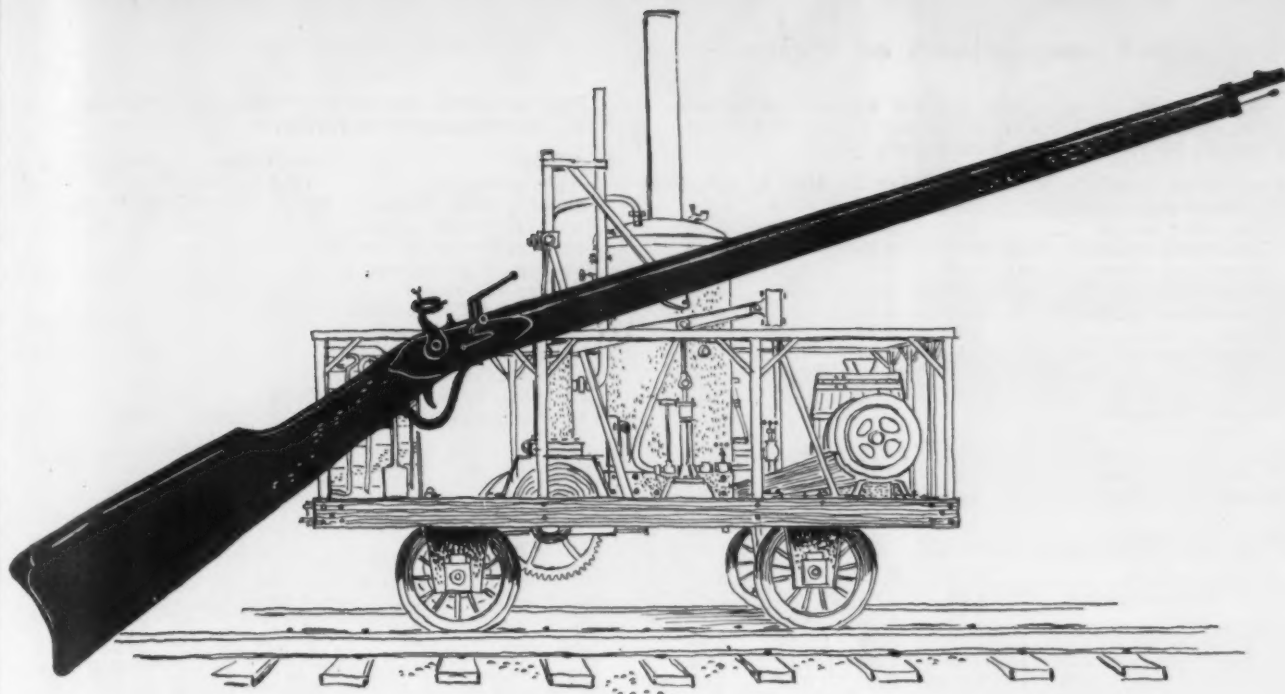
CEILING INTRANSIT PREPARATION CHARGES (Dollars per gross ton)

No. 1 heavy; No. 2 heavy; No. 1 RR heavy; No. 2 RR heavy; No. 1 busheling; No. 2 bundles; electric furnace bundles	\$8.00
No. 1 bundles; bricketted turnings or cast iron borings; No. 1 RR sheet scrap	6.00
Crushing machine shop turnings	3.00
Bar crops and plate, cast steel, punchings and plate, cut structural and plate; 3 ft and under, foundry steel, 2 ft and under, wrought iron	10.00
Structural, plate scrap, 2 ft and less, foundry steel 1 ft and less	11.00
Structural and plate scrap, 1 ft and less	12.00
Rails, 3 ft & less; cut tires; cut bolsters & side frames	4.00
Rails, 2 ft & less	5.00
Rails, 18 in. & less	7.00

Hamilton, Ontario

(Consumers buying prices, del'd gross ton)

Hvy. melting steel	\$35.00
No. 1 bundles	35.00
No. 2 bundles	34.50
Mechanical bundles	33.00
Mixed, steel scrap	31.00
Rails, remelting	35.00
Rails, rerolling	33.00
Bushelings	30.00
Bushelings, prepared new factory	33.00
Bushelings, unprepared new factory	23.00
Short steel turnings	32.00
Mixed borings, turnings	32.00
Cast scrap	50.00



Musket barrels for boiler tubes

"Tom Thumb," the first American-built locomotive, made its initial run on the Baltimore and Ohio Railroad in 1830—from Baltimore to Ellicott Mills, Maryland. When Peter Cooper put this revolutionary steam engine together, he used musket barrels for the boiler tubes.

Guns for boiler tubes—boiler tubes for guns—every pound of scrap is urgently needed today for implements of peace, for implements of defense.

For the purchase or sale of iron or steel scrap...

phone or write "Your Chicago Broker"



231 S. La Salle St., Chicago

Telephone ANdover 3-3900

Comparison of Prices

Steel prices on this page are the average of various f.o.b. quotations of major producing areas: Pittsburgh, Chicago, Gary, Cleveland, Youngstown.

Flat-Rolled Steel:	Apr. 1, 1952	Mar. 25, 1952	Mar. 4, 1952	Apr. 3, 1951
(cents per pound)	1952	1952	1952	1951
Hot-rolled sheets	3.60	3.60	3.60	3.60
Cold-rolled sheets	4.35	4.35	4.35	4.35
Galvanized sheets (10 ga)	4.80	4.80	4.80	4.80
Hot-rolled strip	3.50	3.50	3.50	3.50
Cold-rolled strip	4.75	4.75	4.75	4.75
Plate	3.70	3.70	3.70	3.70
Plates wrought iron	7.85	7.85	7.85	7.85
Stains C-R strip (No. 302)	36.75	36.75	36.75	36.50

Tin and Terneplate:	Apr. 1, 1952	Mar. 25, 1952	Mar. 4, 1952	Apr. 3, 1951
(dollars per base box)				
Tinplate (1.50 lb.) cokes	\$8.70	\$8.70	\$8.70	\$8.70
Tinplate, electro (0.50 lb.)	7.40	7.40	7.40	7.40
Special coated mfg. ternes	7.50	7.50	7.50	7.50

Bars and Shapes:	Apr. 1, 1952	Mar. 25, 1952	Mar. 4, 1952	Apr. 3, 1951
(cents per pound)				
Merchant bars	3.70	3.70	3.70	3.70
Cold finished bars	4.55	4.55	4.55	4.55
Alloy bars	4.30	4.30	4.30	4.30
Structural shapes	3.65	3.65	3.65	3.65
Stainless bars (No. 302)	31.50	31.50	31.50	31.25
Wrought iron bars	9.50	9.50	9.50	9.50

Wire	Apr. 1, 1952	Mar. 25, 1952	Mar. 4, 1952	Apr. 3, 1951
(cents per pound)				
Bright wire	4.85	4.85	4.85	4.85

Rails	Apr. 1, 1952	Mar. 25, 1952	Mar. 4, 1952	Apr. 3, 1951
(dollars per 100 lb)				
Heavy rails	\$3.60	\$3.60	\$3.60	\$3.60
Light rails	4.00	4.00	4.00	4.00

Semifinished Steel:	Apr. 1, 1952	Mar. 25, 1952	Mar. 4, 1952	Apr. 3, 1951
(dollars per net ton)				
Rerolling billets	\$56.00	\$56.00	\$56.00	\$56.00
Slabs, rerolling	56.00	56.00	56.00	56.00
Forging billets	66.00	66.00	66.00	66.00
Alloy blooms, billets, slabs	70.00	70.00	10.00	70.00

Wire Rod and Skelp:	Apr. 1, 1952	Mar. 25, 1952	Mar. 4, 1952	Apr. 3, 1951
(cents per pound)				
Wire rods	4.10	4.10	4.10	4.10
Skelp	3.35	3.35	3.35	3.35

Price advances over previous week are printed in Heavy Type; declines appear in *Italics*.

Pig Iron:	Apr. 1, 1952	Mar. 25, 1952	Mar. 4, 1952	Apr. 3, 1951
(per gross ton)	1952	1952	1952	1951
Foundry, del'd Phila.	\$57.97	\$57.97	\$57.97	\$57.77
Foundry, Valley	52.50	52.50	52.50	52.50
Foundry, Southern, Cin'ti	55.58	55.58	55.58	55.58
Foundry, Birmingham	48.88	48.88	48.88	48.88
Foundry, Chicago†	52.50	52.50	52.50	52.50
Basic, del'd Philadelphia	57.09	57.09	57.09	56.92
Basic, Valley furnace	52.00	52.00	52.00	52.00
Malleable, Chicago†	52.50	52.50	52.50	52.50
Malleable, Valley	52.50	52.50	52.50	52.50
Charcoal, Chicago	70.56	70.56	70.56	70.56
Ferromanganese†	186.25	186.25	186.25	186.25

†The switching charges for delivery to foundries in the Chicago district is \$1 per ton.
‡Average of U. S. prices quoted on Ferroalloy pages.

Scrap:	Apr. 1, 1952	Mar. 25, 1952	Mar. 4, 1952	Apr. 3, 1951
(per gross ton)				
No. 1 steel, Pittsburgh	\$43.00*	\$43.00*	\$43.00*	\$44.00*
No. 1 steel, Phila. area	41.50*	41.50*	41.50*	42.50*
No. 1 steel, Chicago	41.50*	41.50*	41.50*	42.50*
No. 1 bundles, Detroit	41.15*	41.15*	41.15*	41.15*
Low phos., Young'n	46.50*	46.50*	46.50*	46.50*
No. 1 cast, Pittsburgh	49.75†	49.75†	49.75†	49.00†
No. 1 cast, Philadelphia	48.50†	50.25†	50.25†	49.00†
No. 1 cast, Chicago	44.50†	46.50†	49.50†	49.00†

* Basing Pt. † Shipping Pt. ‡ Del'd., includes broker's fee.
Not including broker's fee after Feb. 7, 1951.

Coke: Connellsville:	Apr. 1, 1952	Mar. 25, 1952	Mar. 4, 1952	Apr. 3, 1951
(per net ton at oven)				
Furnace coke, prompt	\$14.75	\$14.75	\$14.75	\$14.75
Foundry coke, prompt	17.75	17.75	17.75	17.75

Nonferrous Metals:	Apr. 1, 1952	Mar. 25, 1952	Mar. 4, 1952	Apr. 3, 1951
(cents per pound to large buyers)				
Copper, electro, Conn.	24.50	24.50	24.50	24.50
Copper, Lake, Conn.	24.625	24.625	24.625	24.625
Tin, Straits, New York	\$1.215	\$1.215	\$1.215	\$1.495
Zinc, East St. Louis	19.50	19.50	19.50	17.50
Lead, St. Louis	18.80	18.80	18.80	16.80
Aluminum, virgin	19.00	19.00	19.00	19.00
Nickel, electrolytic	59.58	59.58	59.58	53.55
Magnesium, ingot	24.50	24.50	24.50	24.50
Antimony, Laredo, Tex.	50.00	50.00	50.00	42.00

Starting with the issue of May 12, 1949, the weighted finished steel composite was revised for the years 1941 to date. The weights used are based on the average product shipments for the 7 years 1937 to 1940 inclusive and 1946 to 1948 inclusive. The use of quarterly figures has been eliminated because it was too sensitive. (See p. 139 of May 12, 1949, issue.)

Composite Prices

Finished Steel Base Price

Apr. 1, 1952	4.131¢ per lb.
One week ago	4.131¢ per lb.
One month ago	4.131¢ per lb.
One year ago	4.131¢ per lb.

	High	Low
1952....	4.131¢ Jan. 1	4.131¢ Jan. 1
1951....	4.131¢ Jan. 2	4.131¢ Jan. 2
1950....	4.131¢ Dec. 1	3.837¢ Jan. 3
1949....	3.837¢ Dec. 27	3.3705¢ May 3
1948....	3.721¢ July 27	3.193¢ Jan. 1
1947....	3.193¢ July 29	2.848¢ Jan. 1
1946....	2.848¢ Dec. 31	2.464¢ Jan. 1
1945....	2.464¢ May 29	2.396¢ Jan. 1
1944....	2.396¢	2.396¢
1943....	2.396¢	2.396¢
1942....	2.396¢	2.396¢
1941....	2.396¢	2.396¢
1940....	2.30467¢ Jan. 2	2.24107¢ Apr. 16
1939....	2.35367¢ Jan. 3	2.27207¢ May 16
1938....	2.58414¢ Jan. 4	2.27207¢ Oct. 18
1937....	2.58414¢ Mar. 9	2.32263¢ Jan. 4
1936....	2.32263¢ Dec. 28	2.05200¢ Mar. 10
1929....	2.31773¢ May 28	2.26498¢ Oct. 29

Weighted index based on steel bars, shapes, plates, wire, rails, black pipe, hot and cold-rolled sheets and strips, representing major portion of finished steel shipment. Index recapitulated in Aug. 28, 1941, issue and in May 12, 1949.

Pig Iron

....	\$52.72 per gross ton....
....	52.72 per gross ton....
....	52.72 per gross ton....
....	52.69 per gross ton....

	High	Low
\$52.72 Jan. 1	\$52.72 Jan. 1	
52.72 Oct. 9	52.69 Jan. 2	
52.69 Dec. 12	45.88 Jan. 3	
46.87 Jan. 18	45.88 Sept. 6	
46.91 Oct. 12	39.58 Jan. 6	
37.98 Dec. 30	30.14 Jan. 7	
30.14 Dec. 10	25.37 Jan. 1	
25.37 Oct. 23	23.61 Jan. 2	
	\$23.61	\$23.61
	23.61	23.61
	23.61	23.61
\$23.61 Mar. 20	\$23.45 Jan. 2	
23.45 Dec. 23	22.61 Jan. 2	
22.61 Sept. 19	20.61 Sept. 12	
23.25 June 21	19.61 July 6	
32.25 Mar. 9	20.25 Feb. 16	
19.74 Nov. 24	18.73 Aug. 11	
18.71 May 14	18.21 Dec. 17	

Based on averages for basic iron at Valley furnaces and foundry iron at Chicago, Philadelphia, Buffalo, Valley and Birmingham.

Scrap Steel

....	\$42.00 per gross ton....
....	42.00 per gross ton....
....	42.00 per gross ton....
....	43.00 per gross ton....

	High	Low
\$42.00 Jan. 1	\$42.00 Jan. 1	
47.75 Jan. 30	42.00 Oct. 23	
45.13 Dec. 19	26.25 Jan. 3	
43.00 Jan. 4	19.33 June 28	
43.16 July 27	39.75 Mar. 9	
42.53 Oct. 28	29.50 May 20	
31.17 Dec. 24	19.17 Jan. 1	
19.17 Jan. 2	18.92 May 22	
19.17 Jan. 11	15.76 Oct. 24	
	\$19.17	\$19.17
	19.17	19.17
\$22.00 Jan. 7	18.92 May 22	
21.83 Dec. 30	16.04 Apr. 9	
22.50 Oct. 3	14.08 May 16	
15.00 Nov. 22	11.00 June 7	
21.92 Mar. 30	12.67 June 9	
17.75 Dec. 21	12.67 June 8	
17.58 Jan. 29	14.08 Dec. 8	

Average of No. 1 heavy melting steel scrap delivered to consumers at Pittsburgh, Philadelphia and Chicago.

Heavy
Apr. 3,
1951
\$57.77
52.50
55.58
48.88
52.50
56.92
52.00
52.50
52.50
70.56
186.25
the Chl.

\$44.00*
42.50*
42.50*
41.15*
46.50*
49.00†
49.00†
49.00†
fee.

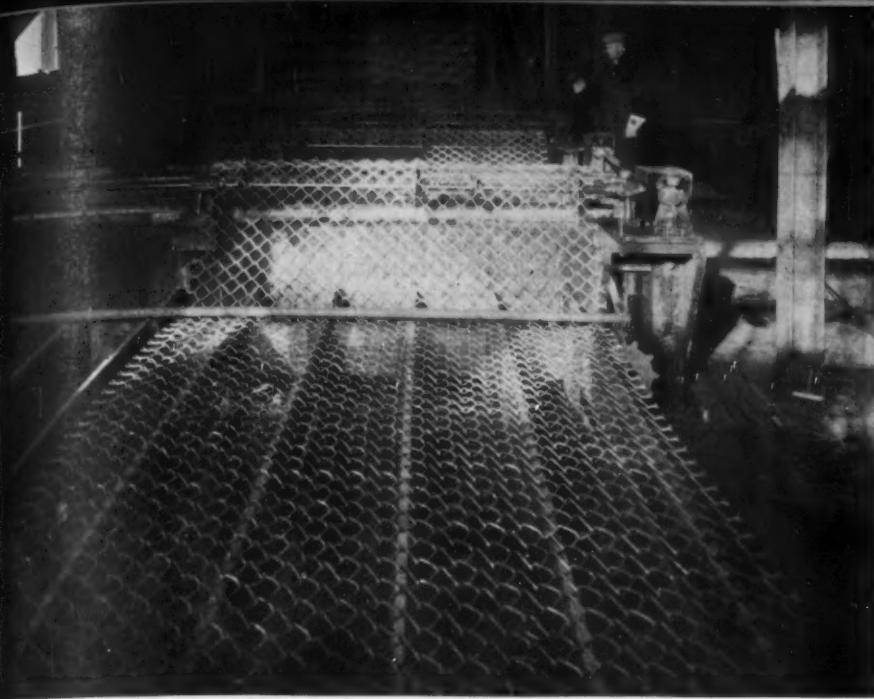
\$14.75
17.75

24.50
24.625
\$1.495
17.50
16.80
19.00
53.55
24.50
42.00

d steel
s used
e 1927
rterly
(See)

Jan. 1
Oct. 23
Jan. 3
June 28
Mar. 9
May 20
Jan. 1
May 22
Oct. 24
17
17
May 22
Apr. 9
May 16
June 7
June 9
June 8
Dec. 8
melting
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1952



*CONTINENTAL Fence Features For Long-Lasting Property Protection

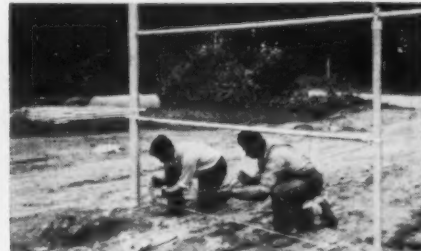
- Fence fabric is hot-dip galvanized—after weaving
- Heavy, modern post caps and barb-wire arms
- Snug-fitting inside-outside couplings
- Sturdy, closely spaced line posts in two styles
- Improved, pivot-type hinges—welded gates
- Extra ties hold fence fabric securely to posts and rails

You get more dollar value fence protection with Continental Chain Link fence. Rugged fabric is galvanized after weaving . . . heavier line posts and rails keep Continental fence in perfect alignment. Easier-operating gates swing on improved pivot hinges, and you get more ties to secure the fabric for longer fence life. Continental fence engineers plan and erect your fence for most effective, low-cost property protection. Write Continental at Kokomo, Ind., or contact nearest sales office.

Planned and Erected to Fit Your Property

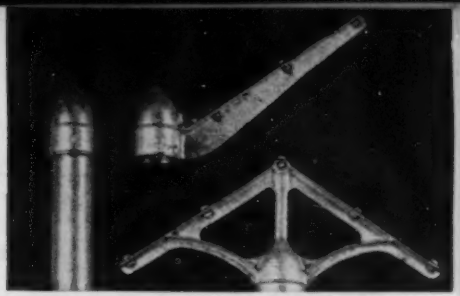


Continental's experienced fence engineers help you plan and lay out fence, tailored to fit your property.

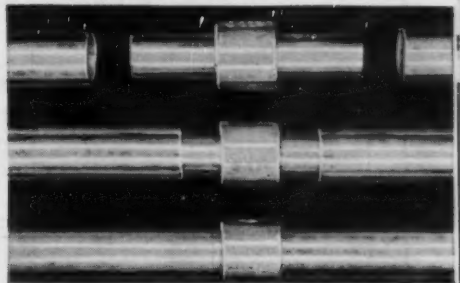


Line posts are solidly set in concrete—fabric carefully stretched and secured for permanence.

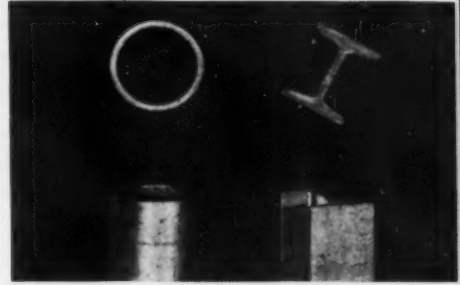
* Trade Mark Reg. U. S. Pat. Off.



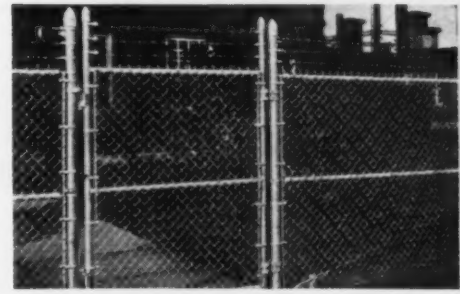
TERMINAL POSTS AND POST TOPS



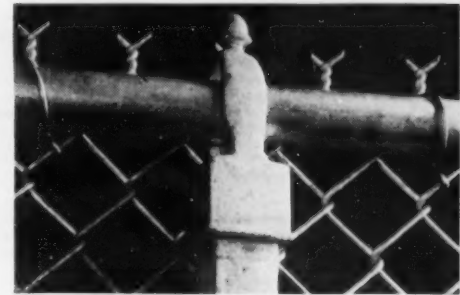
NEW TOP RAIL COUPLING



TUBULAR OR H-SECTION LINE POSTS



SMOOTH-OPERATING GATES



MORE POST AND TOP RAIL TIES



CONTINENTAL STEEL CORPORATION

GENERAL OFFICES • KOKOMO, INDIANA

PRODUCERS OF Manufacturer's Wire in many sizes, shapes, tempers and finishes, including Galvanized, KOKOTE, Flame-Sealed, Coppered, Tinned, Annealed, Liquor Finished, Bright, Lead Coated, and special wire. ALSO, Coated and Uncoated Steel Sheets, Nails, Continental Chain Link Fence, and other products.

IRON AGE

Italics identify producers listed in key at end of table. Base prices, f.o.b. mill, in cents per lb., unless otherwise noted. Extras apply.

**STEEL
PRICES**

		INGOTS		BILLETS, BLOOMS, SLABS			PIPE SKELP	PIL- ING	SHAPES, STRUCTURAL		STRIP			
		Carbon Forging Net Ton	Alloy Net Ton	Carbon Rerolling Net Ton	Carbon Forging Net Ton	Alloy Net Ton			Carbon	Hi Str. Low Alloy	Hot- rolled	Cold- rolled	Hi Str. H.R. Low Alloy	Hi Str. C.R. Low Alloy
EAST	Bethlehem, Pa.					\$70.00 B3			3.70 B3	5.50 B3				
	Buffalo, N. Y.			\$56.00 B3	\$66.00 B3, R3	\$70.00 B3, R3		4.45 B3	3.70 B3	5.50 B3	3.50 B3, R3	4.65 B3	4.95 B3	6.40 B3
	Claymont, Del.													
	Coatesville, Pa.													
	Conschocken, Pa.				\$73.00 A2	\$77.00 A2					3.90 A2		5.55 A2	
	Harrisburg, Pa.													
	Hartford, Conn.													
	Johndstown, Pa.			\$56.00 B3	\$66.00 B3	\$70.00 B3			3.70 B3	5.50 B3	3.50 B3			
	Newark, N. J.													
	New Haven, Conn.											5.15 A5 5.85 D1		
	Phoenixville, Pa.								5.90 P2					
	Putnam, Conn.													
	Sparrows Pt., Md.										3.50 B3	4.65 B3	4.95 A5, B3	6.40 B3
	Worcester, Mass.													
MIDDLE WEST	Trenton, N. J.											6.00 R4		
	Alton, Ill.										3.95 L1			
	Ashland, Ky.										3.50 A7			
	Canton-Massillon				\$66.00 R3, \$66.00 T3	\$70.00 R3 \$66.00 T3								
	Chicago, Ill.			\$56.00 U1	\$66.00 U1, R3, W8	\$70.00 U1, R3, W8		4.45 U1	3.65 U1, W8	5.50 U1	3.50 A1, W8	4.90 A1, I3		
	Cleveland, Ohio				\$66.00 R3							4.65 A5, J3		6.55 A1 6.70 J3
	Detroit, Mich.		\$54.00 R5		\$69.00 R5	\$73.00 R5					4.40 M2 3.80 G4	4.85 G4 5.45 M2 5.60 R5, D1	5.95 G4	
	Duluth, Minn.													
	Gary, Ind. Harbor, Indiana			\$56.00 U1	\$66.00 U1	\$70.00 U1, Y1		4.45 I3	3.65 U1, I3	5.50 U1, I3 6.00 Y1	3.50 U1, Y1, I3	4.90 I3	5.30 U1, I3 5.80 Y1	
	Granite City, Ill.													
	Kokomo, Ind.													
	Middletown, Ohio										3.50 A7	4.65 A7		
	Niles, Ohio Sharon, Pa.										4.00 S1	5.35 S1	5.40 S1	6.55 S1
WEST	Pittsburgh, Pa.	\$52.00 U1	\$54.00 U1, C11	\$56.00 U1	\$66.00 U1	\$70.00 U1, C11	3.35 U1 3.45 J3	4.45 U1	3.65 U1, J3	5.50 U1, J3	4.00 S9, S7 3.75 A3 3.50 J3, A7	4.65 J3, A7 5.00 A3 5.35 B4, S7		
	Portsmouth, Ohio													
	Weirton, Wheeling, Follansbee, W. Va.								3.90 W3		3.60 W3	4.65 W3 5.35 F3	5.75 W3	7.20 W3
	Youngstown, Ohio					\$70.00 Y1 C10	3.35 U1, R3			6.00 Y1	3.50 U1, R3, Y1	4.45 R3, Y1 5.25 C5, T4 5.35 B4	5.30 U1, R3 5.80 Y1	6.55 R3 7.05 Y1
	Fontana, Cal.	\$79.00 K1	\$80.00 K1	\$75.00 K1	\$85.00 K1	\$89.00 K1			4.25 K1	6.10 K1	4.75 K1	6.30 K1	6.20 K1	6.95 K1
	Geneva, Utah				\$66.00 G1				3.65 G1	5.50 G1				
SOUTH	Kansas City, Mo.								4.25 S2		4.10 S2			
	Los Angeles, Calif.				\$85.00 B2	\$90.00 B2			4.25 B2, C7	6.05 B2	4.25 B2, C7	6.40 C1	6.05 B2	
	Minnequa, Colo.								4.10 C6		4.55 C6			
	San Francisco, Cal.				\$85.00 B2				4.20 B2	6.00 B2	4.25 C7, B2		6.05 B2	
	Seattle, Wash.				\$85.00 B2				4.30 B2	6.10 B2	4.50 B2		6.30 B2	
	Atlanta, Ga.										4.85 A8			
	Birmingham, Ala.			\$56.00 T2	\$66.00 T2				\$3.60 R3 3.65 T2	5.50 T2	3.50 R3, T2		5.30 T2	
	Houston, Texas		\$62.00 S2		\$74.00 S2	\$78.00 S2			4.05 S2		3.90 S2			

Italics identify producers listed in key at end of table. Base prices, f.o.b. mill, in cents per lb., unless otherwise noted. Extras apply.

IRON AGE

STEEL PRICES

SHEETS										WIRE ROD	TINPLATE†		BLACK PLATE	
Hot-rolled 18 ga. & hvyr.	Cold- rolled	Galvanized 10 ga.	Enameling 12 ga.	Long Terne 10 ga.	Hi. Str. Low Alloy H.R.	Hi. Str. Low Alloy C.R.	Hi. Str. Low Alloy Galv.	Hot- rolled 19 ga.			Cokes* 1.25-lb. base box	Electro* 0.25-lb. base box	Holloware Enameling 29 ga.	
3.60 B3	4.35 B3				5.40 B3	6.55 B3			4.10 W6					Bethlehem, Pa.
														Buffalo, N. Y.
														Claymont, Del.
4.00 A2					5.65 A2						†Special coated mfg termes deduct 95¢ from 1.25-lb coke base box price. Can-making quality blackplate 55 to 128 lb. deduct \$2.20 from 1.25-lb coke base box. * COKES: 1.50-lb., add 25¢. ELECTRO: 0.50-lb., add 25¢; 0.75-lb., add 65¢.			Coatesville, Pa.
									4.10 B3					Conschocken, Pa.
														Harrisburg, Pa.
														Hartford, Conn.
														Johntown, Pa.
														Newark, N. J.
														New Haven, Conn.
														Phoenixville, Pa.
3.60 B3	4.35 B3	4.80 B3			5.40 B3	6.55 B3	6.75 B3		4.20 B3	\$8.55 B3	\$7.25 B3			Putnam, Conn.
									4.40 A5					Sparrows Pt., Md.
									4.20 R4					Worcester, Mass.
									4.40 L1					Tranton, N. J.
3.60 A7		4.80 A7	4.65 A7											Alton, Ill.
		4.80 R3												Ashland, Ky.
3.60 W8					5.40 U1				4.10 A5,R3, N4					Canton-Massillon
3.60 R3,J3	4.35 R3,J3		4.65 R3		5.40 R3,J3	6.55 R3,J3			4.10 A5		\$7.15 R3			Chicago, Ill.
3.80 G4 4.40 M2	4.55 G4				5.95 G4	7.10 G4								Cleveland, Ohio
														Detroit, Mich.
														Duluth, Minn.
3.60 U1, Y1,I3	4.35 U1, Y1,I3	4.80 U1,I3	4.65 U1,I3	5.20 U1	5.40 U1,I3 5.90 Y1	6.55 U1,I3 7.05 Y1		5.40 J3	4.10 Y1	\$8.45 B3, U1, Y1	\$7.15 U1,I3	5.85 U1 5.30 Y1		Gary, Ind. Harbor, Indiana
4.30 G3	5.05 G3	5.50 G3	5.35 G3											Granite City, Ill.
		5.20 C9										\$7.35 G3	6.05 G3	Kokomo, Ind.
3.60 A7	4.35 A7	4.80 A7	4.65 A7	5.20 A7										Middletown, Ohio
5.25 N3 4.00 S1		6.00 N3		6.00 N3	5.40 S1									Niles, Ohio; Sharon, Pa.
3.60 U1, J3,A7 3.75 A3	4.35 U1, J3,A7	4.80 U1	4.65 U1		5.40 U1,J3	6.55 U1,J3	7.20 U1		4.10 A5 4.30 P6	\$8.45 U1,J3	\$7.15 U1,J3	5.85 U1		Pittsburgh, Pa.
									4.30 P7					Portsmouth, Ohio
3.60 W3,W5	5.35 F3 4.35 W3,W5	4.80 W3,W5		5.20 W3,W5	5.75 W3	6.90 W3				\$8.45 W3,W5	\$7.15 W3,W5	6.15 W5 5.85 F3		Weirton, Wheeling, Follansbee, W. Va.
3.60 U1, R3,Y1	4.35 R3, Y1	5.50 R1	4.65 Y1	6.05 E2	5.40 U1,R3 5.90 Y1	6.55 R3 7.05 Y1		6.05 R1,E2	4.10 Y1	\$8.45 R3		5.30 R3		Youngstown, Ohio
4.55 K1 3.70 G1	5.30 K1				6.35 K1	7.50 K1			4.90 K1					Fontana, Cal.
														Geneva, Utah
														Kansas City, Mo.
4.30 C7		5.55 C7						5.40 C7	4.90 B2,C7	\$9.20 C7	\$7.90 C7			Los Angeles, Cal.
									4.35 C6					Minnequa, Colo.
4.30 C7	5.30 C7	5.55 C7							4.90 A5					San Francisco, Cal.
														Seattle, Wash.
														Atlanta, Ga.
3.60 R3,T2	4.35 T2	4.80 R3,T2			5.40 T2			4.75 R3	4.10 R3,T2	\$8.55 T2	\$7.25 T2			Birmingham, Ala.
									4.50 S2					Houston, Texas

BARS

PLATES

WIRE

A1
A2
A3
A4
A5
A6
A7
A8
B1
B2
B3
B4
B5
C1
C2
C3
C4
C5
C6
C7
C8
C9
C10
C11
C12
C13
D1
D2
D3
E1
E2
F1
F2
F3
G1
G2
G3
G4
H1
I1
I2
I3
J1
J2
J3
J4
K1
K2
K3
L1
L2
L3
L4
M1
M2
M3
M4
M5
M6
N1
N2
N3
N4
O1
P1
P2
P3
P4
P5
P6
P7
P8
R1
R2
R3
R4
R5
S1
S2
S3
S4
S5
S6
S7
S8
S9
S10
T1
T2
T3
T4
T5
T6
U1
U2
U3
W1
W2
W3
W4
W5
W6
W7
W8
W9
W10
Y1

Key to Steel Producers

With Principal Offices

A1	Acme Steel Co., Chicago
A2	Alan Wood Steel Co., Conshohocken, Pa.
A3	Allegheny Ludlum Steel Corp., Pittsburgh
A4	American Cladmetals Co., Carnegie, Pa.
A5	American Steel & Wire Div., Cleveland
A6	Angell Nail & Chaplet Co., Cleveland
A7	Armco Steel Corp., Middletown, O.
A8	Atlantic Steel Co., Atlanta, Ga.
B1	Babcock & Wilcox Tube Co., Beaver Falls, Pa.
B2	Bethlehem Pacific Coast Steel Corp., San Francisco
B3	Bethlehem Steel Co., Bethlehem, Pa.
B4	Blair Strip Steel Co., New Castle, Pa.
B5	Bliss & Laughlin, Inc., Harvey, Ill.
C1	California Cold Rolled Steel Corp., Los Angeles
C2	Carpenter Steel Co., Reading, Pa.
C3	Central Iron & Steel Co., Harrisburg, Pa.
C4	Claymont Steel Corp., Claymont, Del.
C5	Cold Metal Products Co., Youngstown
C6	Colorado Fuel & Iron Corp., Denver
C7	Columbia-Geneva Steel Co., San Francisco
C8	Columbia Steel & Shifting Co., Pittsburgh
C9	Continental Steel Corp., Kokomo, Ind.
C10	Copperweld Steel Co., Glassport, Pa.
C11	Crucible Steel Co. of America, New York
C12	Cumberland Steel Co., Cumberland, Md.
C13	Cuyahoga Steel & Wire Co., Cleveland
D1	Detroit Steel Corp., Detroit
D2	Detroit Tube & Steel Div., Detroit
D3	Driver Harris Co., Harrison, N. J.
E1	Eastern Stainless Steel Corp., Baltimore
E2	Empire Steel Co., Mansfield, O.
F1	Firth Sterling Steel & Carbide Corp., McKeesport, Pa.
F2	Fitzsimmons Steel Corp., Youngstown
F3	Follansbee Steel Corp., Follansbee, W. Va.
G1	Geneva Steel Co., Salt Lake City
G2	Globe Iron Co., Jackson, O.
G3	Granite City Steel Co., Granite City, Ill.
G4	Great Lakes Steel Corp., Detroit
H1	Hanna Furnace Corp., Detroit
I1	Ingersoll Steel Div., Chicago
I2	Inland Steel Co., Chicago
I3	Interlake Iron Corp., Cleveland
J1	Jackson Iron & Steel Co., Jackson, O.
J2	Jessop Steel Corp., Washington, Pa.
J3	Jones & Laughlin Steel Corp., Pittsburgh
J4	Joslyn Mfg. & Supply Co., Chicago
K1	Kaiser Corp., Oakland, Cal.
K2	Keystone Steel & Wire Co., Peoria
K3	Koppers Co., Granite City, Ill.
L1	Laclede Steel Co., St. Louis
L2	La Salle Steel Co., Chicago
L3	Lone Star Steel Co., Dallas
L4	Lukens Steel Co., Coatesville, Pa.
M1	Mahoning Valley Steel Co., Niles, O.
M2	McLouth Steel Corp., Detroit
M3	Mercer Tube & Mfg. Co., Sharon, Pa.
M4	Mid-States Steel & Wire Co., Crawfordsville, Ind.
M5	Monarch Steel Co., Inc., Hammond, Ind.
M6	Mystic Iron Works, Everett, Mass.
N1	National Supply Co., Pittsburgh
N2	National Tube Co., Pittsburgh
N3	Niles Rolling Mills Co., Niles, O.
N4	Northwestern Steel & Wire Co., Sterling, Ill.
O1	Oliver Iron & Steel Co., Pittsburgh
P1	Page Steel & Wire Div., Monessen, Pa.
P2	Phoenix Iron & Steel Co., Phoenixville, Pa.
P3	Pilgrim Drawn Steel Div., Plymouth, Mich.
P4	Pittsburgh Coke & Chemical Co., Pittsburgh
P5	Pittsburgh Screw & Bolt Co., Pittsburgh
P6	Pittsburgh Steel Co., Pittsburgh
P7	Portsmouth Div., Detroit Steel Corp., Detroit
P8	Plymouth Steel Co., Detroit
R1	Reeves Steel & Mfg. Co., Dover, O.
R2	Reliance Div., Eaton Mfg. Co., Massillon, O.
R3	Republic Steel Corp., Cleveland
R4	Roebing Sons Co. (John A.), Trenton, N. J.
R5	Rotary Electric Steel Co., Detroit
S1	Sharon Steel Corp., Sharon, Pa.
S2	Sheffield Steel Corp., Kansas City
S3	Shenango Furnace Co., Pittsburgh
S4	Simonds Saw & Steel Co., Fitchburg, Mass.
S5	Sloss Sheffield Steel & Iron Co., Birmingham
S6	Standard Forging Corp., Chicago
S7	Stanley Works, New Britain, Conn.
S8	Superior Drawn Steel Co., Monaca, Pa.
S9	Superior Steel Corp., Carnegie, Pa.
S10	Sweet's Steel Co., Williamsport, Pa.
T1	Tonawanda Iron Div., N. Tonawanda, N. Y.
T2	Tennessee Coal, Iron & R. Co., Birmingham
T3	Tennessee Products & Chem. Corp., Nashville
T4	Thomas Steel Co., Warren, O.
T5	Timken Steel & Tube Div., Canton, O.
T6	Tremont Nail Co., Wareham, Mass.
U1	United States Steel Co., Pittsburgh
U2	Universal-Cyclops Steel Corp., Bridgeville, Pa.
W1	Wallingford Steel Co., Wallingford, Conn.
W2	Washington Steel Corp., Washington, Pa.
W3	Weirton Steel Co., Weirton, W. Va.
W4	Wheatland Tube Co., Wheatland, Pa.
W5	Wheeling Steel Corp., Wheeling, W. Va.
W6	Wickwire Spencer Steel Co., Buffalo
W7	Wilson Steel & Wire Co., Chicago
W8	Wisconsin Steel Co., S. Chicago, Ill.
W9	Woodward Iron Co., Woodward, Ala.
W10	Wyckoff Steel Co., Pittsburgh
Y1	Youngstown Sheet & Tube Co., Youngstown

Steel Prices

Base price, f.o.b., dollars per 100 lb. * (Metropolitan area delivery add 20¢ except B'ham, San Fran., Cincinnati, New Orleans, St. Paul, add 15¢; Memphis, add 10¢; Phila., add 25¢; N. Y., add 30¢.)

WARE-HOUSES

Cities	Sheets			Strip		Plates		Shapes		Bars		Alloy Bars			
	Hot-Rolled	Cold-Rolled (15 gage)	Galvanized (10 gage)	Hot-Rolled	Cold-Rolled	Standard Structural	Standard Structural	Hot-Rolled	Cold-Finished	Hot-Rolled A 4615 As rolled	Hot-Rolled A 4140 Annealed	Cold-Drawn A 4615 As rolled	Cold-Drawn A 4140 Annealed		
Baltimore.....	5.60	6.84	7.49 ²	6.04	.....	5.80	6.14	6.04	6.84	10.24	10.54	11.89	12.19		
Birmingham*.....	5.60	6.40	6.75	5.55	.....	5.95	5.70	5.55	.....	.....	.....	.....	.....
Boston.....	6.20	7.00	7.74	6.15	8.50 ⁴	6.48	6.20	6.05	6.79	10.25	10.55	11.90	12.20		
Buffalo.....	5.60	6.40	7.74	5.86	.....	6.05	5.80	5.60	6.40	10.15	10.45	11.80	11.95		
Chicago.....	5.60	6.40	7.75	5.55	.....	5.80	5.70	5.55	6.30	9.80	10.10	11.45	11.75		
Cincinnati*.....	5.87	6.44	7.39	5.80	.....	6.19	6.09	5.80	6.61	10.15	10.45	11.00	12.10		
Cleveland.....	5.60	6.40	8.10	5.69	6.90	5.92	5.82	5.57	6.40	9.91	10.21	11.56	11.86		
Detroit.....	5.78	6.53	7.89	5.94	.....	5.99	6.09	5.84	6.56	10.11	10.41	11.76	12.06		
Houston.....	7.00	8.25	.....	.....	.....	6.85	6.50	6.65	9.35	10.35	11.25	.....	12.75		
Indianapolis, del'd.....	6.00	6.80	8.15	5.95	.....	6.20	6.10	5.95	6.80	.....	.....	.....	.....
Kansas City.....	6.00	6.80	7.45	6.15	7.50	6.40	6.30	6.15	7.00	10.40	10.70	12.05	12.35		
Los Angeles.....	6.35	7.90	8.85	6.40	9.45 ³	6.40	6.35	6.35	8.20	11.30	11.30	13.20	13.50		
Memphis*.....	6.33	7.00	.....	6.33	.....	6.43	6.33	6.08	7.16	.....	.....	.....	.....
Milwaukee.....	6.38	7.18	.....	6.38	.....	8.02	6.48	6.33	7.32	.....	.....	.....	.....
New Orleans*.....	5.74	6.54	7.89	5.69	.....	5.94	5.84	5.69	6.44	9.94	10.24	11.59	11.89		
New York*.....	5.70	6.50	.....	5.75	7.25	5.95	5.75	5.75	7.30	.....	.....	.....	.....
Norfolk.....	5.67	7.19 ¹	8.14 ²	6.29	8.63 ⁴	6.28	6.10	6.12	6.99	10.05	10.35	11.70	12.10		
Philadelphia*.....	5.97	7.24 ¹	.....	6.89	.....	6.58	.....	.....	.....	10.15	10.45	11.80	12.20		
Pittsburgh.....	6.50 ³	.....	.....	.....	.....	6.50 ³	6.60 ³	6.55 ³	.....	.....	.....	.....	.....
Portland.....	5.90	6.80	8.00	6.10	.....	6.05	5.90	6.05	6.86	9.90	10.20	.....	.....
Salt Lake City.....	5.60	6.40	7.75	5.65	.....	5.75	5.70	5.55	6.15	9.80	10.10	11.45	11.75		
San Francisco*.....	6.60	8.95	8.50	5.95	.....	6.80	6.95	6.90	.....	.....	12.15	.....	.....
Seattle.....	7.55	.....	9.10	7.30	.....	.....	.....	.....	.....	.....	.....	.....	.....
St. Louis.....	7.95	.....	9.70	8.70	.....	8.05	6.75	7.95	9.00	.....	.....	.....	.....
St. Paul*.....	6.65	7.70	8.55	6.44	9.95 ³	6.40	6.45	6.40	8.20	11.30	11.20	13.20	13.50		
	6.79	7.88 ²	9.25 ²	6.40	.....	6.49	6.64	6.45	8.21	.....	11.30	.....	.....
	7.05	8.60	9.20	9.05	.....	6.75	6.65	6.75	9.05	.....	.....	.....	.....
	5.80	6.65	8.00	5.80	8.00 ⁴	6.13	6.03	5.80	6.55	10.05	10.35	11.70	12.00		
	5.85	.....	.....	8.28	.....	.....	.....	.....	6.65	.....	.....	.....	.....
	6.16	6.96	8.31	6.11	.....	6.36	6.26	6.11	6.96	10.36	10.66	12.01	12.31		

BASE QUANTITIES (Standard unless otherwise keyed): Cold finished bars; 2000 lb or over. Alloy bars; 1000 to 1999 lb. All others; 2000 to 9999 lb. All HR products may be combined for quantity. All galvanized sheets may be combined for quantity. CR sheets may not be combined with each other or with galvanizing sheets, for quantity.
EXCEPTIONS: (1) 400 to 1499 lb; (2) 450 to 1499 lb; (3) 400 to 1999 lb; (4) 6000 lb and over; (5) 1500 to 9993 lb; (6) 2000 to 5999 lb.

STAINLESS STEELS

Base price, cents per lb. f.o.b. mill

Product	301	302	303	304	316	321	347	410	416	430
Ingot rerolling.....	14.25	15.25	16.75	16.25	24.75	20.00	21.75	12.75	14.75	13.00
Slabs billets rerolling.....	18.50	20.00	22.00	21.00	32.25	26.25	28.50	16.50	20.00	16.75
Forg. discs die blocks rings.....	34.00	34.25	36.75	35.75	53.00	40.25	44.75	28.00	28.50	28.50
Billets forging.....	26.25	26.50	28.50	27.75	41.50	31.25	35.00	21.50	22.00	22.00
Bars wires structurals.....	31.25	31.50	34.00	33.00	49.25	37.00	41.50	25.75	26.25	26.25
Plates.....	33.00	33.25	35.25	35.25	52.00	40.75	45.25	27.00	27.50	27.50
Sheets.....	41.00	41.25	43.25	43.25	57.00	49.25	53.75	36.50	37.00	39.00
Strip hot-rolled.....	26.50	26.25	32.50	30.25	48.75	37.00	41.25	23.50	30.25	24.00
Strip cold-rolled.....	34.00	36.75	40.25	38.75	59.00	48.25	52.25	30.50	37.00	31.00

STAINLESS STEEL PRODUCING POINTS—Sheets: Midland, Pa., C11; Brackenridge, Pa., A3; Butler, Pa., A7; McKeesport, Pa., U1; Washington, Pa., W2; (type 316 add 4.5¢) J2; Baltimore, C1; Middletown, O., A7; Massillon, O., R3; Gary, U1; Bridgeville, Pa., U2; New Castle, Ind., J2; Ft. Wayne, J4; Lockport, N. Y., R4.
Strip: Midland, Pa., C11; Cleveland, A5; Carnegie, Pa., S9; McKeesport, Pa., F1; Reading, Pa., C2; Washington, Pa., W2; (type 316 add 4.5¢); W. Leechburg, Pa., A3; Bridgeville, Pa., U2; Detroit, M2; Canton-Massillon, O., R3; Middletown, O., A7; Harrison, N. J., J3; Youngstown, C5; Lockport, N. Y., S4; New Britain, Conn., S7; Sharon, Pa., S1 (type 301 add 3/4¢); Butler, Pa., A7; Wallingford, Conn., W1.
Bars: Baltimore, A7; Duquesne, Pa., U1; Munhall, Pa., U1; Reading, Pa., C2; Titusville, Pa., U2; Washington, Pa., J2; McKeesport, Pa., U1, F1; Bridgeville, Pa., U2; Dunkirk, N. Y., A3; Massillon, O., R3; Chicago, U1; Syracuse, N. Y., C11; Watervliet, N. Y., A3; Waukegan, A5; Lockport, N. Y., S4; Canton, O., T5; Ft. Wayne, J4.
Wire: Waukegan, A5; Massillon, O., R3; McKeesport, Pa., F1; Ft. Wayne, J4; Trenton, N. J., R4; Harrison, N. J., D3; Baltimore, A7; Dunkirk, A3; Monessen, P1; Syracuse, C11; Bridgeville, U2.
Structurals: Baltimore, A7; Massillon, O., R3; Chicago, I1, J4; Watervliet, N. Y., A3; Syracuse, C11.
Plates: Brackenridge, Pa., A3 (type 416 add 1/4¢); Butler, Pa., A7; Chicago, U1; Munhall, Pa., U1; Midland, Pa., C11; New Castle, Ind., J2; Lockport, N. Y., S4; Middletown, A7; Washington, Pa., J2; Cleveland, Massillon, R3.
Forged discs, die blocks, rings: Pittsburgh, C11; Syracuse, C11; Ferndale, Mich., A3; Washington, Pa., J2.
Forging billets: Midland, Pa., C11; Baltimore, A7; Washington, Pa., J2; McKeesport, F1; Massillon, Canton, O., R3; Watervliet, A3; Pittsburgh, Chicago, U1; Syracuse, C11.
ALLEGHENY LUDLUM—Slightly higher on Type 301; slightly lower on others in 300 series.
WASHINGTON STEEL—Slightly lower on 300 series except where noted.

Base discounts, f.o.b. mills. Base price about \$200 per net ton.

Galvanized discounts based on zinc, at 17¢ per lb, East St. Louis. For each 1¢ change in zinc, discounts vary as follows: $\frac{1}{2}$ in., $\frac{3}{4}$ in., and 1 in., 1 pt.; $1\frac{1}{4}$ in., $1\frac{1}{2}$ in., 2 in., $\frac{3}{4}$ pt.; 2½ in., 3 in., $\frac{1}{4}$ pt. Calculate discounts on even cents per lb of zinc, i.e., if zinc is 16.5¢ in 17, 50¢ per lb, use 17¢. Jones & Laughlin discounts apply only when zinc price changes 1¢. $\frac{1}{8}$ " Threads only, butt welded and seamless, 1 pt. higher discount. Plain ends, butt welded and seamless, 3 in. and under, $\frac{3}{4}$ pts. higher discount. Butt welded jobbers' discount, 5 pts. East St. Louis zinc price now 19.50¢.

Furnace, beehive (f.o.b. oven)	Net-Ton
Connellsville, Pa.	\$14.50 to \$15.00
Foundry, beehive (f.o.b. oven)	
Connellsville, Pa.	\$17.50 to \$18.00
Foundry, oven	coke
Buffalo, del'd	\$26.69
Chicago, f.o.b.	\$22.00
Detroit, f.o.b.	34.00
New England, del'd	24.80
Seaboard, N. J., f.o.b.	\$22.75
Philadelphia, f.o.b.	22.70
Swedeland, Pa., f.o.b.	\$22.60
Painesville, Ohio, f.o.b.	34.00
Erie, Pa., f.o.b.	\$22.50
Cleveland, del'd	25.72
Cincinnati, del'd	25.06
St. Paul, f.o.b.	22.50
St. Louis	\$25.40
Birmingham, del'd	21.69
Neveless Island	23.00

22 Ga. H-R cut length	Armature	Elec.	Meter	Dynamo	Transf. 72	Transf. 65	Transf. 58
F.o.b. Mill Cents Per Lb.							
Beech Bottom W5	7.25	8.50	9.30	9.85	10.40	11.10	
Brackenridge A3	7.25	8.50	9.30	9.85			
Follansbee F3	6.75	7.25	8.50	9.30	9.85	10.40	11.10
Granite City C3		7.95	9.20				
Ind. Harbor B3	6.75	7.25					
Marmfield E2	7.25	7.75	9.00	9.80			
Niles, O. N3	7.05	7.55					
Vandergrift U	6.75	7.25	8.50	9.30	9.85	10.40	11.10
Warren, O. R3	6.75	7.25	8.50	9.30	9.85	10.40	11.10
Zanesville A7	6.75	7.25	8.50	9.30	9.85	10.40	11.10

Dollars per gross ton, f.o.b., subject to switching charges.

Producing Point	Basic	Foundry	Malleable	Bessemer	Low Phos.	Bl. Furnace Silvery	Low Phos. Charcoal
Bethlehem B3	\$4.00	\$4.50	\$5.00	\$5.50			
Birmingham R3	48.38	48.88					
Birmingham W9	48.38	48.88					
Birmingham S5	48.38	48.88					
Buffalo R3	\$2.00	\$2.50	\$3.00				
Buffalo Y1	\$2.00	\$2.50	\$3.00			63.75	
Chicago I4	\$2.00	\$2.50	\$2.50	\$3.00			
Cleveland A5	\$2.00	\$2.50	\$2.50	\$3.00	57.00		
Cleveland R3	\$2.00	\$2.50	\$2.50				
Dawsonfield, Tex. L3	48.00	48.50	48.50				
Duluth I4	\$2.00	\$2.50	\$2.50	\$3.00			
Erie I4	\$2.00	\$2.50	\$2.50	\$3.00			
Everett, Mass. M6		50.75	60.25				
Fontana K1	\$8.00	\$8.50					
Geneva, Utah U1, Y1	\$2.00	\$2.50	\$2.50	\$3.00			
Granite City, Ill. K3	\$3.90	\$4.40	\$4.90				
Hubbard, Ohio Y1	\$2.00	\$2.50	\$2.50				
Ironton, Utah C7	\$2.00	\$2.50					
Jackson, Ohio J1, G2						62.50	
Lyle, Tenn. T3							66.00
Monacaon P6	\$4.00						
Neville Island P4	\$2.00	\$2.50	\$2.50	\$3.00			
Pittsburgh U1	\$2.00			\$3.00			
Sharpsville S3	\$2.00	\$2.50	\$2.50	\$3.00			
Steelton B3	\$4.00	\$4.50	\$5.00	\$5.50	60.00		
Swadeland A2	\$6.00	\$6.50	\$7.00	\$7.50			
Toledo I4	\$2.00	\$2.50	\$2.50	\$3.00			
Troy, N. Y. R3	\$4.00	\$4.50	\$5.00		60.00		
Youngstown Y1	\$2.00	\$2.50	\$2.50	\$3.00			
N. Tonawanda, N. Y. T1		\$2.50	\$3.00				

DIFFERENTIALS: Add 50¢ per ton for each 0.25 pct silicon over base, (1.75 to 2.25 pct, except low phos., 1.75 to 2.00 pct), 50¢ per ton for each 0.50 pct manganese over 1 pct, \$2 per ton for 0.5 to 0.75 pct nickel, \$1 for each additional 0.25 pct nickel. Subtract 35¢ per ton for phosphorus, content 0.70 pct and over. Silvery iron. Add \$1.50 per ton for each 0.50 pct silicon over base (6.01 to 6.50 pct) up to 17 pct. \$1 per ton for 0.75 pct or more phosphorus, manganese as above. Bessemer ferroil on prices are \$1 over comparable silvery iron.

Per 100 ft. cnt. 10 to 24 ft. F.A.B. Mill	Size		Seamless		Elec. Weld	
	OD- In.	B.W. Ga.	H.R.	C.D.	H.R.	C.D.
Babcock & Wilcox...	2	13	22.67	26.66	21.99	25.66
	2½	12	39.48	35.84	29.57	34.70
	3	12	33.90	39.90	32.89	38.70
	3½	11	42.37	49.89	41.10	48.70
	4	10	52.60	61.88	51.03	60.62
National Tube.....	2	13	21.62	26.48
	2½	12	29.56	36.32
	3	12	34.05	41.64
	3½	11	40.34	49.41
	4	10	51.21	62.72
Pittsburgh Steel....	2	13	27.08
	2½	12	30.49	37.15
	3	12	34.95	42.59
	3½	11	41.48	50.54
	4	10	52.65	64.16

	Per Net Ton
6 to 24-in., del'd Chicago	\$105.30 to \$108.50
6 to 24-in., del'd N.Y....	108.50 to 109.50
6 to 24-in., Birmingham	91.50 to 96.00
6-in. and larger, f.o.b. cars, San Francisco, Los Angeles, for all rail shipments; rail and water shipment less	\$123.00 to \$130.00
Class "A" and gas pipe, \$5 extra; 4-in. pipe is \$5 a ton above 6-in.	

Cents Per Lb. F.a.b. Mill	CARBON CONTENT				
	0.28- 0.40	0.41 0.60	0.61- 0.80	0.81- 1.05	1.06 1.35
Bridgeport, Conn. <i>S7</i> ...	5.35	6.80	7.40	9.35	11.60
Carnegie, Pa. <i>S9</i>		6.80	7.40	9.35	11.60
Cleveland <i>A5</i>	4.65	6.45	7.40	9.35	11.60
Detroit <i>D1</i>	5.60	6.65	7.25		
New Castle, Pa. <i>B4</i>	5.35	6.80	7.40	9.3	
New Haven, Conn. <i>D1</i>	5.85	6.75	7.35		
Sharon, Pa. <i>S1</i>	5.35	6.80	7.40	9.35	11.60
Wairton, W. Va. <i>W3</i>	5.35	6.80	7.40	9.35	11.60
Worcester, Mass. <i>A5</i>	4.95	6.75	7.70	9.45	11.60
Youngstown <i>C5</i>		6.80	7.40	9.35	11.60

	Standard & Coated Nails	Coated Nails	Woven Wire Fence 9-15½ ga.	Fence Posts	Single Loop Bale Ties	Twisted Barbless Wire	Gal. Barbed Wire	March Wire Anvil	March Wire
F.o.b. Mill	Base Col.	Base Col.	Base Col.	Base Col.	Base Col.	Base Col.	Base Col.	¢/lb. (100)	¢/lb. (100)
Alabama City R3	118	126		123		136	5.70	5.70	
Alliuppa, Pa. J3	118	132			136	140	5.70	6.15	
Atlanta A8	121	133		126	126	143	5.95	6.40	
Partenville K2	118	130		123	143	143	5.70	6.15	
Buffalo W6								4.85	
Cleveland A6	125							5.70	
Cleveland A5		132						5.95	
Crawfordsville M4	118	130		123	140	140	5.70	6.15	
Donora, Pa. A5	118	130		123	140	140	5.70	6.15	
Duluth A5	118	130		123	140	140	5.70	6.15	
Fairfield, Ala. T2	118	130		123	140	140	5.70	6.15	
Houston S2	126	135						6.10	
Johnston, Pa. B3	118	130			140		5.70	6.15	
Joliet, Ill. A5	118	130		123			5.70	6.15	
Kokomo, Ind. C9	120	132		125	138	142	5.80	6.25	
Los Angeles B2								6.65	
Kansas City C6	130			135		152	6.30	6.65	
Minneapolis S2	125	138	130	128	148	146	5.95	6.40	
Monessen P6	124	135				145	5.95	6.40	
Moline, Ill. R3			136						
Pittsburg									
Gal. C7	137			147	156	160	6.65	6.65	
Portsmouth P7	124	137				147	147	6.10	
Rankin, Pa. A5	118	130			140	140	5.70	6.15	
Se. Chicago R3	118	126	140	123		136	5.70	6.15	
S. San Fran. C6				147		160	6.65	6.65	
Sparrows Pt. B3	120			125	142	142	6.70	6.70	
Sterling, Ill. N4	118	130		123	140	140	5.70	6.15	
Struthers, O. Y1							6.70	6.70	
Terrance, Cal. C7	138						6.65	6.65	
Worcester A5	124						6.00	6.00	
Williamsport, Pa. S10			150						

Cut Nails, carloads, base \$7.35 per 100 lb. (less 20¢ to jobbers), at Conshohocken, Pa., (A2), Wheeling, W. Va. (W5), \$7.15.

* Alabama City and So. Chicago don't include zinc extr

Miscellaneous Prices

RAILS, TRACK SUPPLIES

F.o.b. Mill Cents Per Lb	No. 1 Std. Rails	Light Rails	Joint Bars	Track Spikes	Angles	Screw Spikes	Tie Plates	Track Bolts Treated
Bessemer U1...	3.60	4.00	4.70					
Chicago R3...				6.15				
Cleveland R5...					9.35			
Emory T2...	3.60	4.00						
Fairfield T2...		4.00	4.70	6.15	5.60		4.50	9.80
Gary U1...	3.60	4.00						
Ind. Harbor J3...	3.60		4.70	6.15	5.60		4.50	
Johnstown B3...		4.00			5.60			
Juliet U1...		4.00	4.70					
Kansas City S2...				6.40				9.85
Lackawanna B3...	3.60	4.00	4.70				4.50	
Lebanon B3...				6.15		9.35		9.85
Minneapolis C6...	3.60	4.50	4.70	6.15			4.50	9.85
Pittsburgh R3...						9.35		
Pittsburgh O1...						9.35		9.85
Pittsburgh P5...								9.85
Pittsburgh J3...				6.15				
Phila. Cal. C7...							4.65	
Seattle B2...				6.65			4.65	
Steelton B3...	3.60		4.70				4.50	
Struthers Y1...				6.15				4.65
Terrance C7...								4.65
Youngstown R3...				6.15				

TOOL STEEL

F.o.b. mill

W	Cr	V	Mo	Co	Base per lb
18	4	1	—	—	\$1.505
18	4	1	—	5	\$2.13
18	4	2	—	—	\$1.65
1.5	4	1.5	8	—	\$1.06
6	4	2	6	—	\$6.56
High-carbon chromium					63.5¢
Oil hardened manganese					35¢
Special carbon					32.5¢
Extra carbon					27¢
Regular carbon					23¢

Warehouse prices on and east of Mississippi are 3.5¢ per lb higher. West of Mississippi, 5.5¢ higher.

CLAD STEEL

Base prices, cents per pound, f.o.b., mill

Stainless-carbon	Plate	Sheet
No. 304, 20 pct.		
Coatesville, Pa. L4	\$29.5	
Washington, Pa. J2	\$29.5	
Claymont, Del. C4	\$28.00	
Conshohocken, Pa. A2		\$27.50
New Castle, Ind. J2	\$26.50	\$25.50
Nickel-carbon		
10 pct Coatesville, Pa. L4	32.5	
Inconel-carbon		
10 pct Coatesville, Pa. L4	40.5	
Monel-carbon		
10 pct Coatesville, Pa. L4	33.5	
No. 302 Stainless-copper stainless, Carnegie, Pa. A4		77.00
Aluminized steel sheets, hot dip, Butler, Pa. A7		7.75

*Includes annealing and pickling, or sandblasting.

ELECTRODES

Cents per lb, f.o.b., plant threaded electrodes with nipples, unboxed

Diam. in in.	Length in in.	Cents Per lb.
GRAPHITE		
17, 18, 20	60, 72	17.85
8 to 16	48, 60, 72	17.85
7	48, 60	19.67
6	48, 60	20.95
4, 5	40	21.80
3	40	22.61
2 1/2	24, 30	23.15
2	24, 30	25.36
CARBON		
40	100, 110	8.03
35	65, 110	8.03
30	65, 84, 110	8.03
24	72 to 104	8.08
20	84, 90	8.03
17	60, 72	8.03
14	60, 72	8.57
10, 12	60	8.84
8	60	9.10

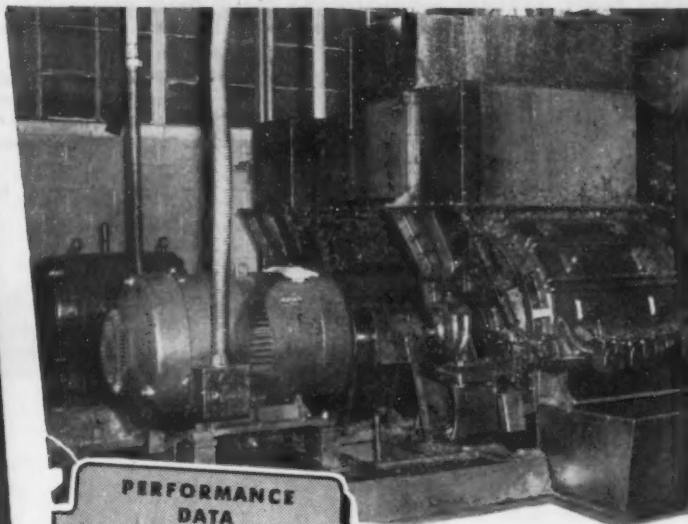
FLUORSPAR

Washed gravel, f.o.b. Rosiclare, Ill.
Price, net ton; Effective CaF₂ content:
70% or more \$43.00
60% or less 40.00

More "CRUSHING" FACTS ON American CRUSHER PERFORMANCE

Case History No. 15

\$60,000 ANNUAL GROSS PROFITS!
WITH TWO AMERICAN METAL TURNINGS CRUSHERS



PERFORMANCE DATA

TWO CRUSHERS: Model 3800's
AVERAGE AGE: 35 months
MONTHLY TONNAGE: 1200-1500 tons metal turnings
PARTS COST: to date, for both crushers: \$1599.80
COST PER TON: \$0.03, including standby parts

THE experience of many blue chip manufacturers have shown that there are three important profit sources in every American installation: (1) American-reduced chips bring \$4 more per ton on scrap market (2) Up to 50 gallons of recovered cutting oil per ton of reduced turnings (3) less storage . . . easier handling.

Let American show you how you can turn your scrap into profit.

WRITE for Bulletin:
"Metal Turnings Crusher."



American PULVERIZER COMPANY
Originators and Manufacturers of Ring Crushers and Pulverizers

1439 MACKLIND AVE., ST. LOUIS 10, MO.

Here's
Efficient
Welding

.....On
C-F

Positioners

When heavy, unwieldy weldments like these diesel crankcases can be quickly swung into any position so that every weld is made downhand—that's efficient welding!

Welders spend more time welding—do better welding at lower cost when they work with C-F Positioners because these hand and/or power operated machines reduce positioning time to a minimum. Investigate the cost-saving advantages of C-F Positioners. They pay their way in any company.

Write for Bulletin WP24 — an illustrated circular detailing the Specific advantages of C-F Positioners.

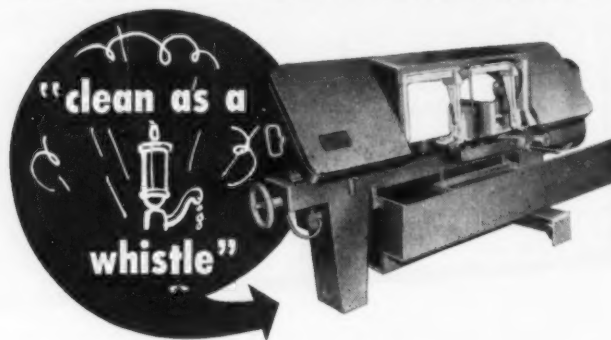
CULLEN-FRIESTEDT CO.

1303 S. Kilbourne Ave., Chicago 23

CULLEN-FRIESTEDT CO., CHICAGO 23, ILL.

C-F
positioned welds
mean better, more
economical welds

NOW...CUT METAL



That's right. There's no burr and kerf is held to a bare minimum when cutting with a Kalamazoo Metal Cutting Band Saw! What's more, accuracy of a few thousandths can be maintained in cutting bars, rounds, angles and odd shapes.

Remember, for continuous or intermittent production cutting at lowest cost... a Kalamazoo can't be beat! Three sizes are available, all can be had with casters for complete portability. Before you specify any metal cutting band saw... investigate what Kalamazoo offers!

MACHINE TOOL DIVISION

Kalamazoo TANK and SILO CO.

416 HARRISON ST., KALAMAZOO, MICHIGAN

Miscellaneous Prices

BOLTS, NUTS, RIVETS, SCREWS

Consumer Prices

(Base, discount, f.o.b. mill, Pittsburgh, Cleveland, Birmingham or Chicago)

Nuts, Hot Pressed, Cold Punched—Sq.

Pot Off List

	Less Keg	K.	Less Keg	K.
	Reg.		Hvy.	
½ in. & smaller.	15	28½	15	28½
9/16 in. & ⅝ in.	12	25	6½	21
¾ in. to 1½ in.				
inclusive	9	23	1	16½
1½ in. & larger.	7½	22	1	16½

Nuts, Hot Pressed—Hexagon

½ in. & smaller.	26	37	22	34
9/16 in. & ⅝ in.	16½	29½	6½	21
¾ in. to 1½ in.				
inclusive	12	25	2	17½
1½ in. & larger.	8½	23	2	17½

Nuts, Cold Punched—Hexagon

½ in. & smaller.	26	37	22	34
9/16 in. & ⅝ in.	23	35	17½	30½
¾ in. to 1½ in.				
inclusive	19½	31½	12	25
1½ in. & larger.	12	25	6½	21

Nuts, Semi-Finished—Hexagon

	Reg.		Hvy.
½ in. & smaller.	35	45	28½ 39½
9/16 in. & ⅝ in.	29½	40½	22 34
¾ in. to 1½ in.			
inclusive	24	36	15 28½
1½ in. & larger.	13	26	8½ 23
		Light	
7/16 in. & smaller			
er	35	45	
½ in. thru ¾ in.	28½	39½	
¾ in. to 1½ in.			
inclusive	26	37	

Stove Bolts

Pot Off List

Packaged, steel, plain finished.	48—10
Packaged, plate finish	31—10
Bulk, plain finish**	62*

*Discounts apply to bulk shipments in not less than 15,000 pieces of a size and kind where length is 3-in. and shorter; 5000 pieces for lengths longer than 3-in. For lesser quantities, packaged price applies.

**Zinc, Parkerized, cadmium or nickel plated finishes add 6¢ per lb net. For black oil finish, add 2¢ per lb net.

Rivets

Base per 100 lb

½ in. & larger	\$7.85
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Cap and Set Screws

(In bulk)

Pot Off List

Hexagon head cap screws, coarse or fine thread, ¼ in. thru ¾ in. x 6 in., SAE 1020, bright	64
¾ in. thru 1 in. up to & including 6 in.	48
¾ in. thru ¾ in. x 6 in. & shorter high C double heat treat	46
¾ in. thru 1 in. up to & including 6 in.	41
Milled studs	35
Flat head cap screws, listed sizes	16
Fillister head cap, listed sizes	34
Set screws, sq head, cup point, 1 in. diam. and smaller x 6 in. & shorter	53

Miscellaneous Prices—

Machine and Carriage Bolts

	Pot Off List	Less	C.
Case			
1/2 in. & smaller x 6 in. & shorter	15	28 1/2	
5/16 in. & 3/8 in. x 6 in. & shorter	18 1/2	30 1/2	
3/4 in. & larger x 6 in. & shorter	17 1/2	29 1/2	
All diam. longer than 6 in.	14	27 1/2	
Lag, all diam. x 6 in. & shorter	23	35	
Lag, all diam. longer than 6 in.	21	33	
Plow bolts	34		

REFRACTORIES

Fire Clay Brick

First quality, Ill., Ky., Md., Mo., Ohio, Pa. (except Salina, Pa., add \$5)	\$94.60
No. 1 Ohio	88.00
Sec. quality, Pa., Md., Ky., Mo., Ill.	88.00
No. 2 Ohio	79.20
Ground fire clay, net ton, bulk (except Salina, Pa., add \$1.50)	13.75

Silica Brick

Mt. Union, Pa., Ensley, Ala.	\$94.60
Childs, Pa.	99.00
Hays, Pa.	100.10
Chicago District	104.50
Western Utah and Calif.	111.10
Super Duty, Hays, Pa., Athens, Tex., Chicago	111.10
Silica cement, net ton, bulk, Eastern (except Hays, Pa.)	16.50
Silica cement, net ton, bulk, Hays, Pa.	18.70
Silica cement, net ton, bulk, Ensley, Ala.	17.60
Silica cement, net ton, bulk, Chicago District	17.60
Silica cement, net ton, bulk, Utah, and Calif.	24.70

Chrome Brick

Standard chemically bonded Balt., Chester	Per Net Ton \$82.00
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Magnesite Brick

Standard, Baltimore	\$104.00
Chemically bonded, Baltimore	93.00

Grain Magnesite

Domestic, f.o.b. Baltimore	St. 1/2-in. grains
In bulk fines removed	\$62.70
Domestic, f.o.b. Chewelah, Wash., in bulk	36.30
In sacks	41.80

Dead Burned Dolomite

F.o.b. producing points in Pennsylvania, West Virginia and Ohio, per net ton, bulk Midwest, add 10¢; Missouri Valley, add 20¢	\$13.75
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LAKE SUPERIOR ORES

(51.50% Fe; natural content, delivered lower lake ports)	Per gross ton
Old range, bessemer	\$8.70
Old range, nonbessemer	8.55
Mesabi, bessemer	8.45
Mesabi, nonbessemer	8.30
High phosphorus	8.30

After adjustments for analyses, prices will be increased or decreased as the case may be for increases or decreases after Dec. 2, 1950, in lake vessel rates, upper lake rail freights, dock handling charges and taxes thereon.



Along the Ohio River's "Sycamore Shores" reigns quiet peacefulness. But just a mile or so away, industrial Cincinnati is working night and day to produce its world-famous machine tools, soap, pianos, radios, television sets and conveying systems — Alvey-Ferguson Engineered Completely Co-ordinated Conveying Systems.

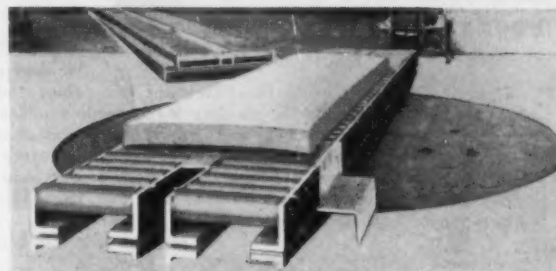


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completely co-ordinated
CONVEYING SYSTEMS are made!



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For a discussion of latest scientific handling methods write
THE ALVEY-FERGUSON COMPANY
558 Disney St. REPRESENTATIVES IN PRINCIPAL CITIES Cincinnati 9, Ohio

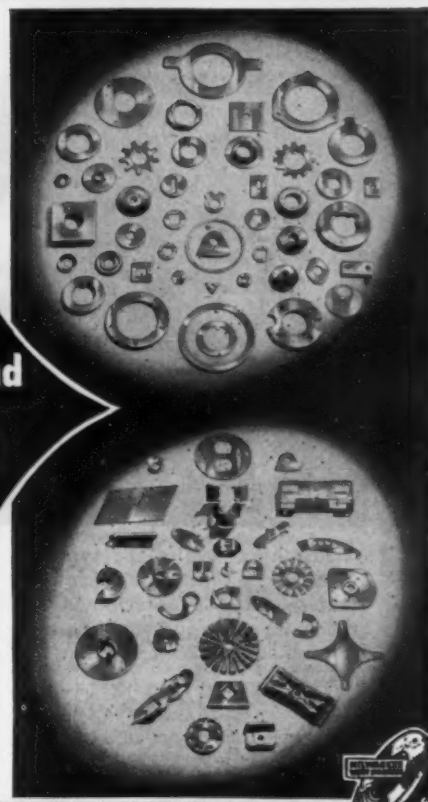
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WASHERS and STAMPINGS

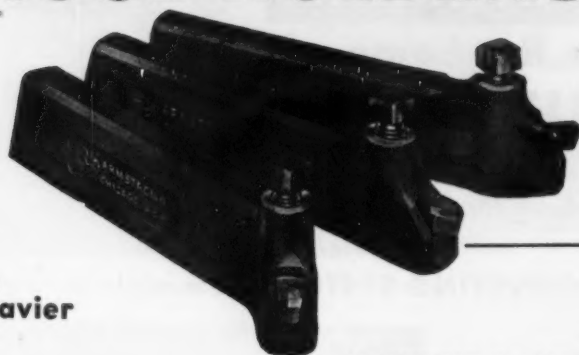
Standard and Special Washers, of every description, from every kind of material, any desired finish . . . designed for every purpose . . . utilizing more than 22,000 Sets of Dies.

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ARMSTRONG *Carbide* TOOL HOLDERS



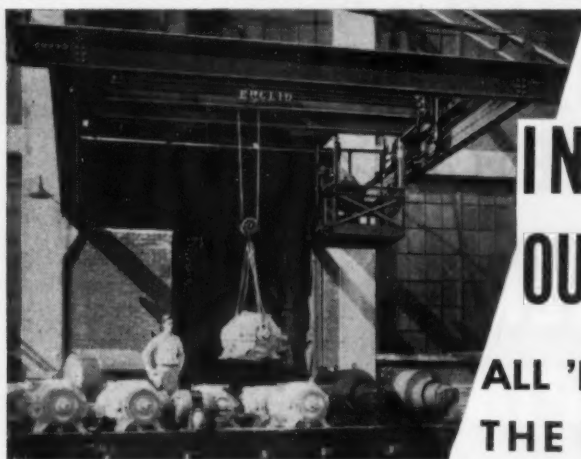
**For
Higher
Speeds,
and Heavier
Feeds**

Tipped) Cutters come in cased sets for tool rooms and maintenance departments, and individually in all sizes for general machine shop and production turning. They permit not only the ready machining of sand-filled castings, the hardest and toughest steels as well as many heretofore "unmachineable" materials, but also make practical much heavier cuts and cutting speeds up to 600 f.p.m. on ordinary work. They also run from 10 to 100 times as long between regrindings.

ARMSTRONG Carbide Tool Holders and ARMIDE (Carbide



Write for Catalog
ARMSTRONG BROS. TOOL CO.
"The Tool Holder People"
5209 WEST ARMSTRONG AVE., CHICAGO 30, ILLINOIS
NEW YORK SAN FRANCISCO



**INSIDE
OUTSIDE
ALL 'ROUND
THE PLANT**

For best results the type of material handling equipment selected must be determined by the nature of your business and its manufacturing operations.

The size of products—the type of units involved—the sequence of operations—the nature of assembly activities and other factors must be considered.

There is a Euclid crane or hoist ideally adapted to a large majority of these situations—inside—outside—all 'round the plant. Let us discuss them with you. Meanwhile, let us send our catalogs.

THE EUCLID CRANE & HOIST COMPANY
1361 CHARDON ROAD, EUCLID, OHIO



Miscellaneous Prices—

METAL POWDERS

Per pound, f.o.b. shipping point, in ton lots, for minus 100 mesh.

Swedish sponge iron c.l.f.	7.4¢ to 9.8¢
New York, ocean bags...	
Canadian sponge iron, del'd, In East	10.00¢
Domestic sponge iron, 98+%	
Fe, carload lots	15.5¢ to 17.8¢
Electrolytic iron, annealed, 99.5+%	42.5¢
Electrolytic iron, unannealed, minus 325 mesh, 99+%	53.5¢
Hydrogen reduced iron, minus 300 mesh, 98+%	63.0¢ to 80.0¢
Carbonyl iron, size 5 to 10 micron, 98%, 99.3+%	83.0¢ to 11.4¢
Aluminum	31.5¢
Brass, 10 ton lots	30.00¢ to 33.25¢
Copper, electrolytic, 10.75¢ plus metal value	
Copper, reduced	10.00¢ plus metal value
Cadmium, 100-199 lb. 95¢ plus metal value	
Chromium, electrolytic, 99% min., and quantity, del'd	93.50
Lead	7.5¢ to 12.0¢ plus metal value
Manganese	57.8¢
Molybdenum, 99%	32.75
Nickel, unannealed	88.0¢
Nickel, annealed	95.0¢
Nickel, spherical, unannealed	92.0¢
Silicon	38.5¢
Solder powder, 7.0¢ to 9.0¢ plus met. value	
Stainless steel, 302	82.00¢
Stainless steel, 316	81.10
Tin	14.00¢ plus metal value
Tungsten, 99% (65 mesh)	84.00
Zinc, 10 ton lots	23.0¢ to 28.5¢

FERROALLOYS

Ferrochrome

Contract prices, cents per pound, contained Cr, lump size, bulk, in carloads delivered. (65-72% Cr, 2% max. Si.)

0.06% C ... 30.50	0.20% C ... 29.50
0.10% C ... 30.00	0.50% C ... 29.25
0.15% C ... 29.75	1.00% C ... 29.00
2.00% C	28.75
65-69% Cr, 4-9% C	22.00
62-66% Cr, 4-6% C, 6-9% Si	22.00

S. M. Ferrochrome

Contract price, cents per pound, chromium contained, lump size, delivered.

High carbon type: 60-85% Cr, 4-4% Si, 4-6% Mn, 4-6% C.

Carloads	21.00
Ton lots	21.75
Less ton lots	25.25

Low carbon type: 62-66% Cr, 4-6% Si, 4-6% Mn, 1.25% max. C.

Carloads	27.75
Ton lots	30.00
Less ton lots	31.95

High-Nitrogen Ferrochrome

Low-carbon type: 67-72% Cr, 0.75% N. Add 5¢ per lb to regular low carbon ferrochrome price schedule. Add 5¢ for each additional 0.25% N.

Chromium Metal

Contract prices, per lb chromium contained, packed, delivered, ton lots, 97% min. Cr, 1% max. Fe.

0.10% max. C	\$1.14
0.50% max. C	1.10
9 to 11% C	1.08

Low Carbon Ferrochrome Silicon

(Cr 34-41%, Si 42-49%, C 0.06% max.) Contract price, carloads, f.o.b. Niagara Falls, freight allowed; lump 4-in. x down bulk 2-in. x down, 21.75¢ per lb of contained Cr plus 12.40¢ per lb of contained Si.

Bulk 1-in. x down, 21.90¢ per lb contained Cr plus 12.60¢ per lb contained Si

Calcium-Silicon

Contract price per lb of alloy, dump delivered.

30-33% Ca, 60-65% Si, 3.00% max. Fe	
Carloads	19.00
Ton lots	23.10
Less ton lots	23.60

THE IRON AGE, April 3, 1952

ces-

in ton

to 3.8g

10.00g

to 17.8g

42.5g

53.5g

to 80.0g

to \$1.41

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to 33.25g

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Ferroalloy Prices

Continued

Calcium-Manganese-Silicon

Contract prices, cents per lb of alloy lump, delivered.

16-20% Ca, 14-18% Mn, 53-59% Si	
Carloads	20.00
Ton lots	22.30
Less ton lots	23.30

CM52

Contract price, cents per lb of alloy, delivered.

Alloy 4: 45-49% Cr, 4-6% Mn, 18-21% Si, 1.25-1.75% Zr, 3.00-4.5% C.

Alloy 5: 50.56% Cr, 4-6% Mn, 13.50-16.00% Si, 0.75 to 1.25% Zr, 3.50-5.00% C.	
Ton lots	20.75
Less ton lots	22.00

SMZ

Contract price, cents per pound of alloy, delivered, 60-65% Si, 5-7% Mn, 5-7% Zr, 20% Fe, 1/2 in. x 12 mesh.

Ton lots	17.50
Less ton lots	19.50

V Foundry Alloy

Cents per pound of alloy, f.o.b. Suspension Bridge, N. Y., freight allowed, max St. Louis. V-5: 33-42% Cr, 17-19% Si, 8-11% Mn.

Ton lots	16.50
Less ton lots	17.75

Graphidox No. 4

Cents per pound of alloy, f.o.b. Suspension Bridge, N. Y., freight allowed, max. St. Louis. Si 48 to 52%, Ti 9 to 11%, Ca 5 to 7%.

Carload packed	18.00
Ton lots to carload packed	19.00
Less ton lots	20.50

Ferromanganese

78-82% Mn, maximum contract base price, gross ton, lump size.

F.o.b. Niagara Falls, Alloy, W. Va., Ashtabula, O.	\$185
F.o.b. Johnstown, Pa.	\$187
F.o.b. Sheridan, Pa.	\$185
F.o.b. Etna, Clairton, Pa.	\$188
\$2.00 for each 1% above 82% Mn, penalty, \$2.15 for each 1% below 78%.	
Briquets—Cents per pound of briquet, delivered, 66% contained Mn.	
Carload, bulk	10.95
Ton lots	12.55

Spiegeleisen

Contract prices gross ton; lump, f.o.b.

16-19% Mn	19-21% Mn
3% max. Si	3% max. Si
Palmerton, Pa.	\$74.00
Pgh. or Chicago	75.00
	76.00

Manganese Metal

Contract basis, 2 in. x down, cents per pound of metal, delivered.

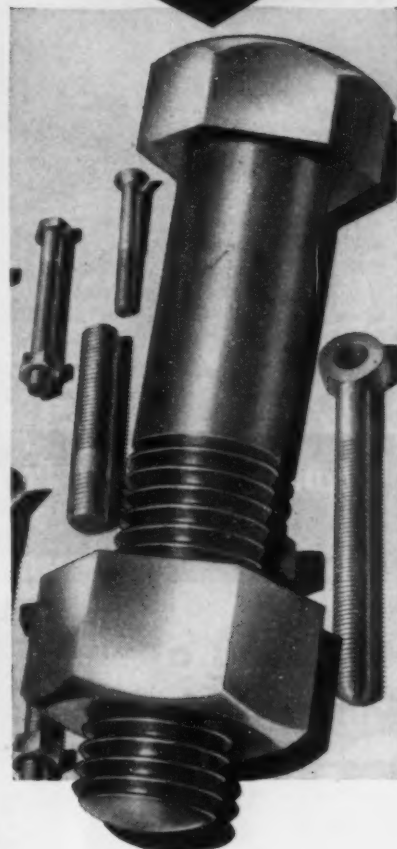
96% min. Mn, 0.2% max. C, 1% max. Si, 2.5% max. Fe.	
Carload, packed	34.75
Ton lots	36.25

Electrolytic Manganese

F.o.b. Knoxville, Tenn., freight allowed east of Mississippi, cents per pound.

Carloads	28
Ton lots	30
Less ton lots	32

First for

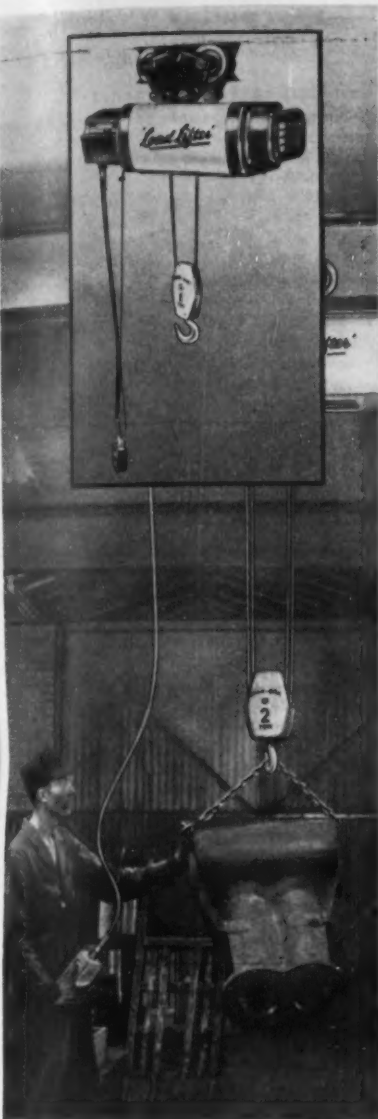
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NUTS
STUDS**


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- ★ Heat-treated
- ★ Alloy Steels
- ★ Stainless Steel
- ★ Silicon Bronze
- ★ Naval Brass
- ★ Monel Metal

You can count on a uniform Class 3 Fit when you buy Pawtucket threaded fasteners. Accurately made in standard dimensions—or to your specifications.

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Use Headed and Threaded Fasteners for Economy and Reliability



FAST LIFTING SPEEDS OUTPUT!

The fast lifting action of the "Series 700" 'Load Lifter' Electric Hoist shortens handling time. Manpower can process more units per day for less.

Keep your production at high levels around the clock. Put this heavy-duty 'Load Lifter' on the job. Push-button control with only 24 volts at the push button, wipes out muscle strain, increases safety, and maintains worker efficiency. Simple design and rugged construction assure long life in the severest service. Capacities: 1,000 pounds upwards. Single and two-speed control available. Bulletin No. 399 contains all the facts. Write for a copy.



'Load Lifter'

HOISTS

MANNING, MAXWELL & MOORE, INC.
MUSKEGON, MICHIGAN

Builders of "Shaw-Box" Cranes, 'Budgit' and 'Load Lifter' Hoists and other lifting specialties. Makers of 'Ashcroft' Gauges, 'Hancock' Valves, 'Consolidated' Safety and Relief Valves, 'American' Industrial Instruments.

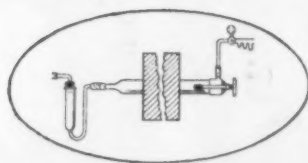
THE IRON AGE, April 3, 1952

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*It's VERY FEEL
MATCHES ITS PEERLESS
PERFORMANCE*



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We hand to you a tube of complete satisfaction and specialties to suit your needs.

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Beaver Falls . . . Penna.

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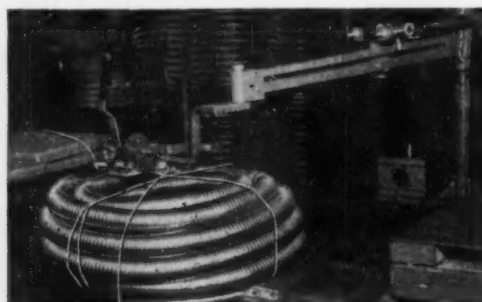


Diesel engine crankcase are palletized for interplant movement. 3000 lb. load is firmly secured with 2 Gerrard Straps. (Photo courtesy International Harvester Company, Industrial Power Division.)

GERRARD STEEL STRAPPING DIVISION
UNITED STATES STEEL COMPANY
4705 S. Richmond St., Chicago 32, Ill.

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UNITED STATES STEEL



This flexible metal hose is securely fastened with 4-way reinforcement. The Gerrard machine on suspension arm is available over a wide work area.

Perhaps GERRARD can solve it!

• The Gerrard Method of Round Steel Strapping is most versatile. It is equally adaptable to small bundles, heavy pallets or carload stowage. Gerrard Strapping complies fully with Army-Navy specifications JAN-P-106A, JAN-P-107 and JAN-P-108 for overseas packaging. It provides firm, tight, secure reinforcement for both regular and odd-shaped bundles. Every Gerrard machine tensions, ties and cuts the strapping quickly and efficiently. There is no waste motion or lost time.

A Gerrard engineer will gladly give you detailed information on Gerrard's low cost, speed of operation and adaptability.

Write for a free copy of the *Blue Book of Packaging*.



Ferroalloy Prices

Continued

Low-Carbon Ferromanganese

Contract price, cents per pound Mn contained, lump size, del'd Mn 85-90%.

	Carloads	Ton	Less
0.7% max. C, 0.06% P, 90% Mn	26.25	28.10	29.20
0.07% max. C	25.75	27.60	28.80
0.15% max. C	25.25	27.10	28.30
0.30% max. C	24.75	26.60	27.80
0.50% max. C	24.25	26.10	27.30
0.75% max. C			
7.00% max. Si	21.25	23.10	24.30
Alsifer, 20% Al, 40% Si, 40% Fe, contract basis, f.o.b. Suspension Bridge, N. Y.			
Carloads			9.90
Ton lots			11.30
Calcium molybdate, 46.3-46.6% f.o.b. Langeloth, Pa., per pound contained Mo.			\$1.15

Medium Carbon Ferromanganese

Mn 80% to 85%, C 1.25 to 1.50. Contract price, carloads, lump, bulk, delivered, per lb of contained Mn

Silicomanganese	
Contract basis, lump size, cents per pound of metal, delivered, 65-68% Mn, 18-20% Si, 1.5% max. C. For 2% max. C, deduct 0.2¢.	
Carload bulk	9.90
Ton lots	11.55
Briquet, contract basis carlots, bulk delivered, per lb of briquet	11.15
Ton lots	12.75

Silvery Iron (electric furnace)

Si 14.01 to 14.50 pct, f.o.b. Keokuk, Iowa, or Wenatchee, Wash., \$92.50 gross ton, freight allowed to normal trade area. Si 15.01 to 15.50 pct, f.o.b. Niagara Falls, N. Y., \$90.00. Add \$1.00 per ton for each additional 0.50% Si up to and including 18%. Add \$1.00 for each 0.50% Mn over 1%.

Silicon Metal

Contract price, cents per pound contained Si, lump size, delivered, for ton lots packed.

96% Si, 2% Fe	21.70
97% Si, 1% Fe	22.10

Silicon Briquets

Contract price, cents per pound of briquet bulk, delivered, 40% Si, 2 lb Si briquets.

Carloads, bulk	6.95
Ton lots	8.55

Electric Ferrosilicon

Contract price, cents per pound contained Si, lump, bulk, carloads, delivered.

25% Si	20.00	75% Si	14.30
50% Si	12.40	85% Si	15.50
90.95% Si			17.50

Calcium Metal

Eastern zone contract prices, cents per pound of metal, delivered.

	Cast	Turnings	Distilled
Ton lots	\$2.05	\$2.95	\$3.75
Less ton lots	2.40	3.30	4.55

Ferrocolumbium, 50-60%, 2 in. x D, contract basis, delivered, per pound contained Cb.

Ton lots	\$4.90
Less ton lots	4.95

Ferro-Tantalum-Columbium, 20%

Ta, 40% Cb, 0.30 C. Contract basis, delivered, ton lots, 2 in. x D, per lb of contained Cb plus Ta

\$3.75

Ferromolybdenum, 55-75%, f.o.b. Langeloth, Pa., per pound contained Mo

\$1.35

Ferroalloy Prices

Continued

Ferrophosphorus, electrolytic, 23-26%, car lots, f.o.b. Siglo, Mt. Pleasant, Tenn., \$3 unitage, per gross ton \$65.00
10 tons to less carload \$75.00

Ferrotitanium, 40%, regular grade, 0.10% C max., f.o.b. Niagara Falls, N. Y., and Bridgeville, Pa., freight allowed, ton lots, per lb contained Ti \$1.35

Ferrotitanium, 25%, low carbon, 0.10% C max., f.o.b. Niagara Falls, N. Y., and Bridgeville, Pa., freight allowed, ton lots, per lb contained Ti \$1.50
Less ton lots 1.55

Ferrotitanium, 15 to 18%, high carbon, f.o.b. Niagara Falls, N. Y., freight allowed, carload per net ton \$177.00

Ferrotungsten, standard, lump or 1/4 x down, packed, per pound contained W, 5 ton lots, delivered \$5.00

Ferrovandium, 35-55% contract basis, delivered, per pound, contained V \$3.00-\$3.10
Openhearth 3.10- 3.20
Crucible 3.10- 3.20
High speed steel (Primus) 3.20- 3.25

Molybdenum oxide, briquets or cans, per lb contained Mo, f.o.b. Langeloth, Pa. \$1.14
bags, f.o.b. Washington, Pa., Langeloth, Pa. \$1.13

Simanal, 20% Si, 20% Mn, 20% Al, contract basis, f.o.b. Philo, Ohio, freight allowed, per pound
Carload, bulk lump 14.50¢
Ton lots, bulk lump 15.75¢
Less ton lots, lump 16.25¢

Vanadium Pentoxide, 86-89% V₂O₅ contract basis, per pound contained V₂O₅ \$1.23

Zirconium, 35-40%, contract basis, f.o.b. plant, freight allowed, per pound of alloy
Ton lots 21.00¢

Zirconium, 12-15%, contract basis, lump, delivered, per lb of alloy
Carload, bulk 7.00¢

Boron Agents

Borasil, contract prices per lb of alloy, del. f.o.b. Philo, Ohio, freight allowed, B, 3-4%, Si, 40-45%, per lb contained B \$5.25

Bortam, f.o.b. Niagara Falls
Ton lots, per pound 45¢
Less ton lots, per pound 50¢

Corbortam, Ti, 15-21%, B, 1-2%, Si, 2-4%, Al, 1-2%, C, 4.5-7.5%, f.o.b. Suspension Bridge, N. Y., freight allowed
Ton lots, per pound 10.00¢

Ferroboron, 17.50% min. B, 1.50% max. Si, 0.50% max. Al, 0.50% max. C, 1 in. x D. Ton lots \$1.20
F.o.b. Wash., Pa.; 100 lb up
10 to 14% B85
14 to 19% B 1.20
19% min. B 1.50

Grainal, f.o.b. Bridgeville, Pa., freight allowed, 100 lb and over
No. 1 \$1.00
No. 6 68¢
No. 79 50¢

Manganese-Boron, 75.00% Mn, 15-20% B, 5% max. Fe, 1.50% max. Si, 3.00% max. C, 2 in. x D, del'd
Ton lots \$1.46
Less ton lots 1.57

Nickel-Boron, 15-18% B, 1.00% max. Al, 1.50% max. Si, 0.50% max. C, 3.00% max. Fe, balance Ni, delivered
Less ton lots \$1.80

Silca, contract basis, delivered
Ton lots 45.00¢

COMPACT, FAST TRAVELING

KRANE KAR

SWING-BOOM
MOBILE CRANE

CAN SWING IT!

SWINGS AND
TRANSPORTS
LOADS OF ANY
SHAPE OR SIZE
ANYWHERE IN
YOUR PLANT



1 1/2, 2 1/2, 5 and 10 ton cap.

You don't have to face the load . . . swing the boom! It's live and handles up to 10 tons at either side. You can swing materials from a RR car right onto a waiting truck; reach into a boxcar and load it; stack piles two-deep and three-deep on both sides of aisle, increasing storage space; move loads into plant through low shop doors; work in narrow aisles and congested areas where other equipment cannot operate.

Only KRANE KAR can do such difficult materials-handling jobs ECONOMICALLY because 1—it transports full rated load; 2—tops and lowers boom by power; 3—lowers load by power; 4—has automatic crane braking at limit positions; 5—has good vision; 6—excellent traction and short turning radius; 7—gas-powered, it can work 24 hours a day.

Use KRANE KAR as a standby for bigger cranes and for emergency maintenance and repairs. ASK FOR BULL. 89—STEEL, Metalworking and Metalproducing Industries.

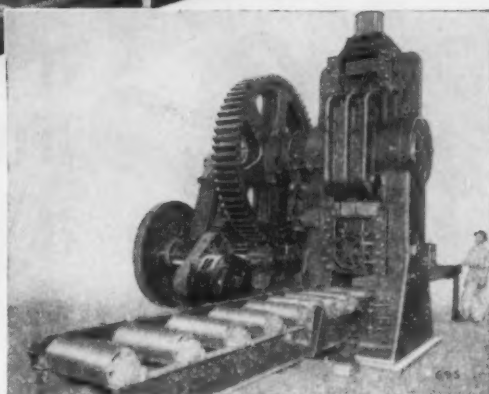
SILENT HOIST & CRANE CO. 851 63rd ST., BROOKLYN 20, N. Y.

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BILLET SHEARS

for long and
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3A



THOMAS Heavy Duty Billet Shears are built in capacities from 500 to 2000 tons, with the primary objective of delivering to the user many years of efficient, trouble-free service. And they do!

Write for Bulletin 311

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THOMAS

MACHINE MANUFACTURING COMPANY

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COLLET AND ENGELHARD



Table rotates 360°
Centralized handwheel
control of feeds and
speeds. Rapid power
traverse of all move-
ments.

TABLE TYPE HORIZONTAL BORING MACHINE

AVAILABLE IN '52 AS INDICATED

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|-----------------|----------------|----------------|
| (1) No. BFF-60 | 2 1/4" spindle | Sept. delivery |
| (2) No. BFF-70 | 2 3/4" spindle | Aug. delivery |
| (2) No. BFF-70 | 2 3/4" spindle | Oct. delivery |
| (1) No. BFF-100 | 4" spindle | May delivery |

OTHER MODELS AVAILABLE—approximately 12 months delivery.

OTHER MACHINES CARRIED

Keller-type die-sinking machines.
Heavy duty portable and stationary vertical
and horizontal shapers.
Fully Universal radial drill presses.
Two column Planers.
Single and multiple wire drawing machines.
Surface and cylindrical grinders.
Cold headers and cold Thread Rollers.
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Heavy duty Lathes; Facing lathes.
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Millers, Horizontal, Vertical and Universal.

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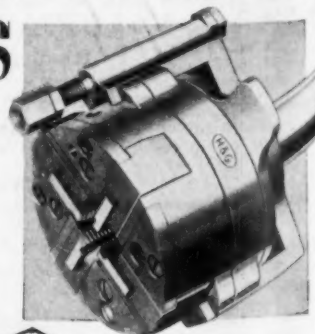
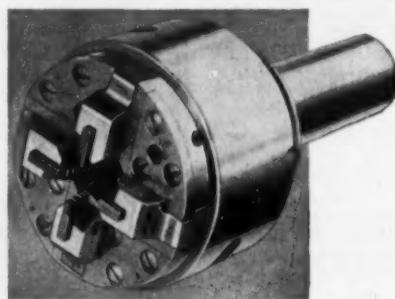
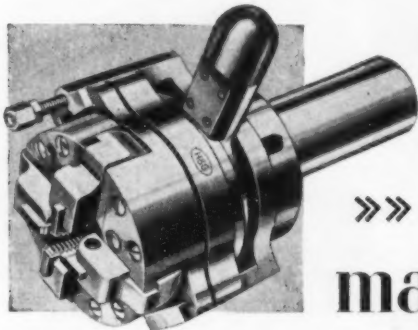
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These clean, true-to-pattern steel castings give you Uniform Structure—Efficient Distribution of Metal—A Wide Range of Mechanical Properties to fit your specific needs—Minimum of Machining—Ease of Assembly—Dimensional Stability for better fit and better performance—and a Toughness and Fatigue Resistance that provide for longer life, less replacements.

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LANSDOWNE, PENNA.

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If you have missed the special Iron Age series of five articles on boron steel which appeared last July and August you may want to order a reprint.

A 30-page reprint booklet covers the following:

1. Boron steel alternates for standard grades.
2. Advantages and limitations of boron steels.
3. Hardenability charts.
4. Case studies of boron steel use in plants making gears . . . pinions . . . springs . . . bolts . . . axles.

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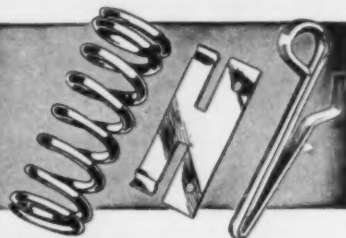
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NEWS OF USED, REBUILT AND SURPLUS MACHINERY

Still Waiting—The amendment to CPR 80 which was promised 4 months ago by the Office of Price Stabilization is still hanging fire. Originally it was said the amendment could be expected within a few weeks. Last week it was on the desk of the final OPS Committee but, as in several previous instances, it was handed back. Latest information suggests it may possibly be released during the week of Apr. 7.

Final action on the long anticipated price guide book cannot be expected until the CPR 80 amendment receives full approval, since the two items are part of the same general price regulating package.

Market Trends—Among the larger dealers in Detroit the slowing condition of the market is looked upon as temporary. They feel strongly that the market will stay vigorous and the optimistic ones are buying all they can get, hoping to be ready for a freshening market. The trend in the New York area (as most everywhere else) indicates a dropping off of activity. One dealer states that even the volume of inquiries has fallen off.

Actually this represents little change in the used market. Cutbacks in defense orders and sick demand from small manufacturers have been playing havoc for some time. Outright cancellations of defense contracts in the aircraft industry have also brought about not only a slowing down in ordering used equipment but have also been responsible for many direct cancellations. This may affect the import market heavily as new machine toolmakers get a chance to take up the slack.

Trained Tools—Machine tools which had been turned over to educational institutions following World War II are finding their way back into the production of defense items. The Federal Security Agency claims that at least 260

units have been relinquished by various institutions at a cost to the government of about \$16,500.

These same tools would have cost considerably more if purchased directly. In many cases FSA had to pay freight charges only.

Actually the agency is directing its plea to all colleges and universities, vocational and high schools which had purchased machine tool equipment from War Assets Administration or other government agency following the last war. They seek only those tools not now being used in regular educational programs. In some cases where tools have been recovered, schools have waived government payment in lieu of the extremely low rates originally charged.

Free of Charge—One of 70 pieces of equipment recently uncovered in the New York area was valued at \$700,000 and was turned over at no cost. This one instance will be of great benefit to the agency's program. Following recovery, defense contractors will lease the tools from the government. All types of equipment are being sought, such as cutting or shaping tools as well as measuring or inspecting equipment.

The tools are still valuable to the program, the agency claims, despite their apparent need of repair or lack of electrical components. In many instances, tools in such condition can be conditioned by the contractor or by a rebuilder.

Convention Plans—The Machinery Dealers National Assn. which will hold its annual convention at the Waldorf Astoria Hotel in New York, May 8-10, expects a record attendance, according to reservations being received. Following Washington practices, the wife of some MDNA member will become proud possessor of a mink stole which is to be given away during the convention.